HELSINKI SCHOOL OF ECONOMICS
Department of Accounting and Finance

DO ACQUIRERS SHARE ADVISORS?

Information Spillovers and the Choice of Advisor in M&A

Finance
Master's thesis
Spring 2007
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Approved by the Council of the Department 29 / 5 2007 and awarded
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ABSTRACT
18.5.2007

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OBJECTIVES OF THE STUDY

The objective of this thesis is to examine whether the risk of information spillovers has an effect on how acquirers choose their advisor in M&A transactions. The potential for information spillovers arises when an investment bank that advises an acquirer has recently advised other firms that are industry competitors of the acquirer.

DATA

I use a data set consisting of 1582 M&A transactions carried out by listed companies from the United States between 1.1.1996 and 30.9.2006. I restrict my attention to acquisitions where the acquirer was among the top-20 companies in its industry as measured by sales and where the advisor was among the top-50 M&A advisors in that year. Data on the M&A transactions is collected from the Thomson Financial SDC database. Additional company-specific data is collected from the Thomson Financial Worldscope database.

METHODOLOGY

I use a probit regression model to estimate the probability that a particular bank is chosen as M&A advisor by an acquirer. In this model, I treat the top-50 M&A advisors in the year of the transaction as candidate banks from which the acquirer chooses its advisor. I also examine the probability that an advisor switches advisors in consecutive transactions by estimating a probit regression model.

RESULTS

I find that a bank's chances of being selected as advisor are decreased when the acquirer is among the top-3 companies in its industry and the candidate bank has recently advised other top-3 companies. This suggests that the risk of information spillovers has an effect on how top-3 acquirers choose their advisor. Furthermore, I report that the position of an investment bank in the network of banks and the quality of the bank's contacts in that network positively affects the probability that a bank is chosen as M&A advisor. These two findings are, to the best of my knowledge, new to the literature on M&A advisory services. I also confirm the role of bank-firm relationships, bank reputation, and industry expertise in M&A advisor choice.

KEYWORDS

Investment banking, merger, acquisition, M&A, competition

HELSINGIN KAUPPAKORKEAKOULU
Rahoituksen pro gradu -tutkielma
Jaakko Harlas

TIIVISTELMÄ
18.5.2007

KÄYTTÄVÄTKÖ OSTAJAYRITYKSET SAMOJA NEUVONANTAJIA?
Informaation läikkyminen ja neuvonantajan valinta yrityskaupoissa

TAVOITTEET

Tutkielman tavoitteena on selvittää, vaikuttaako riski informaation läikkymisestä siihen, miten ostajayritykset yrityskaupoissa valitsevat neuvonantajansa. Informaation läikkymisen riski syntyy, jos ostajayrityksen neuvonantaja on hiljattain toiminut neuvonantajana yritykselle, joka kilpailee ostajayrityksen kanssa sen omalla toimialalla.

TUTKIMUSAINEISTO

Tutkimusaineiston muodostaa 1582 yhdysvaltalaisten pörssinoteerattujen yritysten tekemää yrityskauppaa, jotka on tehty 1.1.1996 ja 30.9.2006 välisenä aikana. Keskityn tutkielmassani niihin yrityskauppoihin, joissa ostaja oli toimialansa 20 johtavan yrityksen joukossa liikevaihdolla mitattuna ja joissa neuvonantajapankki oli 50 johtavan yrityskauppaneuvonantajan joukossa. Yrityskauppa-aineisto on kerätty Thomson Financial SDC -tietokannasta, minkä lisäksi yrityskohtaisia tietoja on kerätty Thomson Financial Worldscope -tietokannasta.

TUTKIMUSMENETELMÄT

Estimoin probit-regressiomallin avulla sitä todennäköisyyttä, että yritysostaja valitsee juri tietyn investointipankin neuvonantajakseen. Tässä mallissa neuvonantajaehdokkaina ovat ne pankit, jotka olivat 50 johtavan neuvonantajan joukossa yrityskaupan toteuttamisvuonna. Tutkin toisen probit-regressiomallin avulla myös sitä todennäköisyyttä, että ostajayritys vaihtaa neuvonantajaa peräkkäisissä yrityskaupoissa.

TULOKSET

Investointipankin todennäköisyys tulla valituksi neuvonantajaksi pienenee, jos ostajayritys on toimialansa kolmen johtavan yrityksen joukossa ja ko. investointipankki on toiminut hiljattain neuvonantajana toiselle vastaavassa asemassa olevalle yritykselle. Tämä viittaa siihen, että informaation läikkymisen riski vaikuttaa siihen, miten top-3-yritykset valitsevat neuvonantajansa. Havaitsen myös, että investointipankin asema pankkien välisessä verkostossa ja pankin kontaktien laatu tässä verkostossa lisää tietyn pankin todennäköisyyttä tulla valituksi neuvonantajaksi yrityskaupassa. Vastaavia havaintoja ei ole parhaan käsitykseni mukaan tehty aikaisemmissa yrityskauppoja käsittelevissä tutkimuksissa. Tutkielmassani vahvistan myös pankin ja yrityksen välisen suhteen, pankin maineen sekä pankin toimialaosaamisen merkityksen yrityskauppaneuvonantajan valinnassa.

AVAINSANAT

Investointipankki, fuusio, yrityskauppa, kilpailu

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1. Introduction

1.1 Background and motivation

Mergers and acquisitions advisory continues to be a significant source of income for investment banks. According to Thomson Financial[1], investment banks earned more than $32 billion in fees from M&A advisory in 2006, showing an increase of almost 26.7 percent from 2005. The surge in fees earned by investment banks reflects the fact that global M&A volume in 2006 reached $3.8 trillion, surpassing the previous record of $3.4 trillion that was set at the height of the previous M&A boom in 2000. This time around, the rise in M&A volume is not driven by a certain industry, but rather by the activity of financial sponsors who have acted as a catalyst for the current uptrend in M&A transactions. Thomson Financial reports that in 2006, financial sponsor activity was behind 19.9% of global M&A volume, which is significantly higher than in 2000 when the corresponding figure was less than 5%.

Competition for M&A advisory mandates has intensified in recent years. One reason for this is that global commercial banks have entered the advisory market, by means of acquiring investment banks or by building in-house capability in this field. Although M&A league tables continue to be dominated by so called "bulge-bracket" banks, the competitive situation between banks offering advisory services appears thus to have become more fluid. Against this backdrop, it is not surprising that an increasing amount of research is dedicated to exploring how investment banks compete against each other and what motivates firms in their choice of investment bank. However, as shown below, a significant proportion of this research is focused on the choice investment banks as underwriters of equity and debt securities. Research on the M&A advisory activities of investment banks is still relatively scarce when compared with research that is focused on underwriting.

A significant body of research is dedicated to examining what factors affect the choice of underwriter. The significance of bank reputation in this context is linked to the certification function that banks have when they act as underwriters (Beatty and Ritter 1986; Booth and Smith 1986). Both the short-term (Johson and Miller 1988; Carter and Manaster 1990) and the long-run performance (Ritter 1991; Loughran and Ritter 1995) have been found to be affected by the reputation of the underwriting bank. Consequently, bank reputation appears to

[1] Fourth Quarter 2006 Global M&A Financial Advisory Review, Thomson Financial 2006. Available at: http://www.thomson.com/pdf/financial/league_table/ma/150587/4Q06_MA_Global_Finl_Advisory

be an important factor that influences how firms choose their underwriter (See, e.g. Krigman et al. 2001). The importance of long-term bank-firm relationships in winning underwriting mandates has been reported by Yasuda (2005) and Ljunqvist et al. (2006). In addition, Ellis et al. (2006) find that the bank's ability to act as market maker also has an effect on underwriter choice.

Research on how companies choose their advisor in connection with M&A transactions is still rather scarce. The effect of bank reputation on M&A advisor choice has been studied by Kale et al. (1998), Rau (2000), Rau and Rodgers (2002), and Kale et al. (2003), who all observe that reputation and the bank's ability to complete a deal seem to be linked. This result is confirmed by Hunter and Jagtiani (2003). Furthermore, bank reputation appears to decrease the probability that a firm switches to using another bank as its advisor in consecutive M&A transactions (Saunders and Srinivasan 2001). The role of commercial banks as M&A advisors has been examined by Allen et al. (2004) who suggest that commercial banks could be more effective in performing the role of certifying the value of the deal when they have existing debt relationships with the client they are advising.

In a recent paper that focuses on the underwriting side of investment banking, Asker and Ljungqvist (2006) take a fairly novel approach to explaining what motivates investment bank choice. They study whether firms seek to avoid sharing underwriters with their product-market rivals because of the risk that sensitive information could be leaked to their competitor through the underwriter. The results of their study suggest that these potential "information spillovers" could play an even more significant role in investment bank competition than bank reputation.

This thesis is motivated by the findings of Asker and Ljungqvist (2006) as described briefly above. It is plausible to think that firms who hire investment banks as their advisors in connection with M&A transactions could have similar concerns related to strategically sensitive information as firms issuing debt or equity securities. This could have an impact on how investment banks compete with each other and how the market for M&A advisory mandates is structured. As a logical extension to the study by Asker and Ljungqvist (2006), I therefore examine whether potential information spillovers have an effect on how acquirers choose their M&A advisor.

1.2 Research problem

The objective of this thesis is to examine whether the risk of information spillovers has an effect on how acquiring firms choose their M&A advisor. In other words, I examine whether the fact that a certain investment bank has product-market rivals of the acquirer as its clients affects the acquirer's choice of investment bank. The existence of product-market rival clients could have an effect on advisor choice because of the risk of strategically sensitive information being transmitted to the acquirer's competitors through the advisor. I also examine whether an acquirer is more likely to switch advisors between consecutive M&A transactions if, since the first transaction, the acquirer's current investment bank has merged with another bank that has product-market rivals of the acquirer as its clients. I formulate the research problem as follows:

Do acquirers in M&A transactions share advisors with their product-market rivals? In other words, i) Is an acquiring firm less likely to choose a certain bank as its advisor if the bank has recently advised one or more of the firm's product-market rivals? and ii) Is an acquiring firm more likely to switch to using another bank as its advisor in consecutive M&A transactions if, after the first transaction, the advisor has merged with another bank that has product-market rivals of the acquirer as its clients?

Although the research problem of this study is based on an existing study by Asker and Ljungqvist (2006), I study the question in relation with the choice of M&A advisor while Asker and Ljungqvist (2006) approach the problem from the perspective of underwriter choice. Consequently, this thesis provides a contribution to extant research on the subject of investment bank competition by following the methods used by Asker and Ljungqvist (2006) and applying them to a different area of investment banking. To my knowledge, there are no previous studies that would have examined M&A advisor choice from the same perspective.

The question I examine in this study is also relevant because it provides a new perspective to understanding the nature and dynamics of investment bank competition in the field of M&A advisory. My results could also help in explaining the factors that determine the market power of investment banks who compete in the M&A advisory market. More specifically, the results of this study could explain why it might not be possible for one investment bank to reach a dominating position as a provider of advisory services to clients within a certain industry.

It should be noted that, in this thesis, I focus on how acquirers choose their M&A advisors, i.e. I concentrate on examining the research problem from the perspective of buy-side advisory. Although buy-side and sell-side advisory in M&A transactions are similar in many ways, it is likely that there are differences in the depth of information gathering performed in the two forms of advisory. It is plausible to think that a buy-side advisor is not necessarily required to perform an in-depth analysis of its client, i.e. the acquirer, since the client would be more concerned about evaluating the target company. The advisor of a target company, on the other hand, has to perform extensive information gathering with respect to its client in order to be able to evaluate the fairness of a bid. Put together, this means that in course of the advisory relationship, a sell-side advisor is likely to receive more strategically sensitive information about its client than a buy-side advisor.

1.3 Key results and contribution

The results of my empirical tests provide support for the information spillover hypothesis, although the evidence is somewhat mixed. When looking at the full sample of acquisitions performed by top-20 acquirers, I find that the probability of a certain bank being chosen as M&A advisor by an acquirer is decreased if that bank has clients that are top-3 product-market rivals of the acquirer. The examination of subsamples reveals, however, that the negative effect on advisor choice probability is limited to situations where the acquirer itself is also among the top-3 companies in its industry. This finding provides new information about the extent to which companies are affected by the risk of information spillovers. Asker and Ljungqvist (2006) only examined top-10 companies without looking at top-3 companies as a separate subsample.

Another interesting finding that contributes to existing literature on M&A advisory services is related to how M&A advisor choice is affected by the extensiveness and quality of interbank networks that banks build in the course of their activity. By using measures adapted from social networks analysis I am able to report that not only the number of contacts a bank has, but also the quality of those contacts is positively related to the probability that a certain bank is chosen as M&A advisor. To my best knowledge, this has not been reported in previous M&A literature. With respect to underwriting research, the finding is in line with Asker and Ljungqvist (2006) and Ljungqvist et al. (2006).

The results from the advisor switching model are somewhat disappointing, since I am unable to find support for the information spillovers hypothesis by examining whether acquirers are more prone to switch advisors after their relationship bank has merged with another bank. This is mostly due to the lack of appropriate data in respect of bank mergers where both merger partners would have had clients within the same industry.

1.4 Structure of the study

The structure of this study is as follows. Chapter 2 reviews the extant literature on the subject. Chapter 3 presents the hypotheses of the study. Chapter 4 reviews the data and the methodology used in the study. Chapter 5 presents the results of the empirical study. Chapter 6 summarizes and concludes.

2. Theoretical background and empirical evidence

2.1 The concept of information spillovers

In this chapter I present an introduction to the issue of information spillovers and its effect on competition between firms providing advisory services. In addition to investment banks, which are the focus of my thesis, this issue affects credit institutions, consultancies, accountants, auditors, and legal firms who are also commonly trusted with trade secrets and other confidential information in the course of their business.

2.1.1 Information spillovers and general organizational theory

Demski et al. (1999) examine spillovers of private information from the perspective of organizational theory. Their focus is on analyzing how information flows should be controlled within firms in order to protect clients and how employee incentives can be used to mitigate the risk of information leakage. Demski et al. (1999) argue that, in addition to other means, clients manage their proprietary information through their choice of advisor, which subjects them to a dilemma related to potential information leakage. On the one hand, choosing a common firm with a competitor provides the client with an opportunity to exploit industry knowledge that the advisor has received through advising several clients within the same industry. On the other hand, sharing an advisor with your competitor also increases the risk of proprietary information leakage.

Clients know that it may be impossible for the advisor to "forget" proprietary information when the advisor moves on to dealing with other clients. This applies especially when the

same people within the advisor's organization are working with different clients. Anton et al. (2005) note that even with the confidentiality of client information being protected legally, it is difficult to detect and stop information leakage after it has happened. This means that the protection awarded by confidentiality agreements could, in practice, be fairly weak. Demski et al. (1999) suggest that this leads to clients having to bid against each other in order to attain the allegiance of their advisor and to avoid being sold out to other clients. To avoid this problem altogether, firms may choose to use different advisors on different occasions or they may resort to producing the services internally.

2.1.2 Information spillovers and the choice of financing

An early paper by Campbell (1979) was among the first to develop the idea that potential leakage of confidential information could have an effect how companies choose their method of financing. Campbell's (1979) analysis starts from the assumption that there is an insider-manager in a firm who develops information on investment projects which create monopoly returns. The manager's assessment of the projects is conditional upon keeping his strategy secret. Campbell (1979) argues that if managers can be made to act in the best interests of current owners, they may then use financing decisions to preserve monopoly rents for current equity owners. The thrust of Campbell's (1979) argument is that this can be achieved by distributing securities privately and, at the same time, disclosing confidential information. In order to protect the interests of current owners, managers will differentiate the claim of new owners from the claim of present owners.

Campbell (1979) argues that securities become differentiated in order to protect the right to monopoly profits for one group of owners. In a situation where the management has developed an investment strategy that it believes can generate supernormal risk-adjusted profits, secrecy is vital for the success of the project. The management can therefore not communicate information on the investment opportunity publicly to shareholders in order to convince them of the reliability of the estimate, because doing so would enable other firms to emulate the strategy. According to Campbell's (1979) analysis, the distribution of excess profits to the firm's security holders is dependent on whether the profits are perceived by the market. It is thus beneficial for existing owners to form an agency contract between them and the managers in order to preserve monopoly profits for existing owners. This agency function of managers is based on the possibility that a group of new investors could be persuaded to provide financing for the new investment on terms that are more favourable to current equity

holders given that inside information could be revealed to them confidentially. As elaborated below, Campbell (1979) concludes that this leads to firms preferring debt financing, and particularly private debt financing.

Campbell (1979) presents several conditions that have to be fulfilled in order to successfully transfer confidential information to new investors. First of all, the recipient of the information must be in a position to verify its accuracy. If this is not the case, managers would have the incentive to overstate the value of the inside information. Second, the inside information must be disclosed to more than one potential investor. If there were only one investor, he would offer such a price that would ensure that at least a part of the excess profits accrues to him. If there are two or more investors, this is possible only if they collude. However, increasing the number of potential investors to whom information is disclosed also increases the risk that information is leaked. The managers will thus set the number of potential investors at a level where the marginal loss from collusion is equal to the marginal expected loss from leaked inside information. As the third condition, company management must be assured that new investors can not take advantage of the inside information by buying securities from the open market at a price which they know is understating the company's true value. This presents the management with a monitoring problem. However, Campbell (1979) suggests that the management's monitoring burden can be at least partially lifted by agreeing that new investors can hold only debt securities and that they would thus be in breach of the contract if they went on to purchase equity from the market.

It follows from Campbell's (1979) analysis that private debt financing is of value to owners because it allows the distribution of confidential information concerning a firm's future prospects on terms that are favourable to the existing owners of the firm. If the market undervalues the firm, current equity holders will thus prefer to finance investment projects with private debt. Selling new equity in conjunction with the disclosure of inside information would place a monitoring burden on the management since the new investors could not be allowed to use their knowledge and purchase undervalued shares from existing owners. The costs of monitoring makes debt financing the preferred choice compared to equity.

2.1.3 Information spillovers and bank-firm relationships

Von Rheinbaben and Ruckes (2004) investigate how potential spillovers of private information affect the number and nature of bank relationships that companies keep. They argue that this effect follows from prospective borrowers having to disclose confidential

information to the lending bank in order to demonstrate their creditworthiness. The information is used by the lender as a basis for the credit decision, i.e. whether to lend to the company or not. It is notable that in contrast to market financing, bank financing does not involve formal disclosure requirements that would require disclosing information to the public. This means that borrowers expect that confidential information disclosed by them is not observed by any third parties. However, as Von Rheinbaben and Ruckes (2004) point out, information may be leaked to outsiders either by accident or during a lender's advising activity. Advising a client requires that the bank has thorough knowledge of the client's industry, including estimates of future market demand and competitive strategies of competitors. This knowledge is gleaned from other companies in the borrower's industry that the bank does business with. A banker can then use the confidential information gained in this process when advising other clients. Even without an explicit information leak taking place, confidential information can thus be brought to the knowledge of third parties. This is, of course, detrimental to the company that has disclosed the information.

Von Rheinbaben and Ruckes (2004) suggest that borrowers can manage the negative effect of potential information leakage in two ways: First, borrowers can decide *how many* relationships to creditors they establish. Second, borrowers can choose *how much* confidential information they disclose to the creditors, although it is likely that a certain part of the proprietary information has to be given to the creditor in any case. This implies that the optimal bank financing policy for a company is characterized by these two choices, i.e. the *number* of bank relationships and the *closeness* of these relationships. The negative effect of disclosing proprietary information follows from the assumption that an increase in disclosed information results in a greater probability of the information being leaked to competitors, which in turn leads to lower returns from the product market activities of a company. However, Von Rheinbaben and Ruckes (2004) note that the more information the lender receives, the better it is able to evaluate the creditworthiness of the borrower, which leads into a lower cost of credit for the borrower. It follows from this that the borrower's financing choice can be characterized as a trade-off between a lower cost of credit and a greater expected loss from information leaks.

By formulating and analyzing a theoretical model, Von Rheinbaben and Ruckes (2004) predict that, first of all, ceteris paribus the number of bank relationships increases in firm age and size. Older and larger companies are more likely to be creditworthy than their younger

and smaller counterparts. It follows from this that companies that have a long history or are large enough do not have to convince their creditors by disclosing confidential information to them. Consequently, these companies can maintain a larger number of bank relationships in order to induce competition between the banks. Von Rheinbaben and Ruckes (2004) also postulate that there is an U-shaped relationship between innovativeness and the number of bank relationships. If a firm is highly innovative and decides to disclose private information, the potential costs of information leakage are greater when compared to less innovative firms. It is thus optimal for the firm to maintain fewer bank relationships in order to limit the probability of information leaks. However, if the firm's profits are highly sensitive to information being transmitted to outsiders, the company chooses not to disclose confidential information. The firm then maintains many bank relationships in order to lower its cost of credit.

In a related paper, Yosha (1995) examines how bilateral and multilateral financing arrangements differ in the degree of information disclosure and how this difference affects the choice of financing for small and medium-sized companies. In multilateral financing arrangements, the relationship between the borrower and the various lenders is often not very close. This implies that the borrowing firm has to disclose detailed information to the lenders in order to demonstrate its creditworthiness. In a bilateral arrangement involving a firm and a single lender, there is less need for far-reaching disclosure of information because the relationship between the two parties is likely to be close. Yosha (1995) argues that the difference in the amount of information that has to be disclosed to lenders also leads to differing costs of disclosure in multilateral and bilateral financing. In a multilateral arrangement, private information is more likely to leak to a third party than in a bilateral arrangement, since more information is disclosed, and it is distributed to a greater number of parties. This means that multilateral financing is more costly than bilateral financing because of the greater risk of information leakage. Yosha (1995) develops a theoretical model in order to offer an explanation for the existence of multilateral finance even in the presence of higher costs of disclosure.

Yosha (1995) suggests that other companies can infer information on other companies' by observing the choice between bilateral and multilateral financing. If a firm chooses bilateral financing, other companies will think that it is trying to hide private information that could be valuable to them, and react accordingly. Since bilateral financing is confidential, it may

induce a stronger reaction than what would be warranted. In multilateral financing, on the other hand, private information is eventually transmitted to outsiders, who can base their reactions on this.

Yosha (1995) argues further that firms using bilateral financing are more profitable than firms using multilateral financing. This conclusion is based on the assumption that the sensitivity of private information is positively correlated with the firm's profitability. In other words, if a firm considers it worthwhile to try and hide private information, it must be "up to something", i.e. it is in possession of information that would be valuable to the firm's competitors. The benefit from keeping the information private outweighs the loss of profit that follows from other companies reacting to the choice of financing. Firms who choose multilateral financing, on the other hand, have nothing to hide, i.e. their private information is not as valuable. For them, it is more profitable to choose multilateral financing even with the increased costs of disclosure related to it. According to Yosha (1995) this follows from other companies being able to base their reaction the private information itself, which means that the reactions will not be as strong they would be if the company chose bilateral financing.

2.1.4 Information spillovers and the choice of underwriter and M&A advisor

The bank financing decision, as examined by Von Rheinbaben and Ruckes (2004) and Yosha (1995), is comparable to the decision companies make when they choose an underwriter for a debt or equity issue or an advisor in relation to a M&A transaction. As described by Von Rheinbaben and Ruckes (2004), choosing the number and closeness of bank relationships involves a trade-off between the cost of credit and losses from potential information leakage. Dealing with multiple banks lowers the cost of credit through competition but, at the same time, increases the probability of information leaks. Similarly, a company choosing an investment bank as its underwriter or M&A advisor faces a trade-off between, on the one hand, the reputation and industry experience of the bank and, on the other hand, the risk of information being leaked to competitors.

Investment banks with a good reputation and significant industry experience are likely to have a client relationship with some of the company's competitors. This is especially the case if the company in question is among the leading companies in its industry, since these companies are usually served by a limited number of "bulge bracket" investment banks. From the company's perspective, sharing a bank with your competitor increases the probability that confidential information is transmitted to its competitors. Accordingly, in order to avoid

information leaks taking place, the company may then choose a less reputable or less experienced investment bank. Since the perceived risk of information leakage forces the bank to choose a bank that is not its first choice, it can be said that the situation imposes a cost on the company.

From the perspective of banks or other firms providing services to clients, the issue described above creates a constraint on competition. A prospective client that would otherwise choose a particular firm as its advisor may refrain from doing so in fear of information leakage. This means that firms may lose business due to concerns over information spillovers even when the bank's superior reputation or other attributes would normally tilt the scale in their favour. This negative effect on inter-bank competition has not been thoroughly studied so far and research on the subject is thus fairly scarce. However, a recent paper by Asker and Ljungqvist (2006) is one of the first to approach the subject with a special focus on investment banks competing for underwriting mandates. I review this study more thoroughly than others, since the paper is the primary source of motivation for this thesis not only on a conceptual level, but also methodologically.

Asker and Ljungqvist (2006) argue that when choosing an underwriter for debt and equity issues, companies are concerned about the risk that confidential information may be leaked to their product-market competitors if the companies use the same bank as their competitor. Based on this, Asker and Ljungqvist (2006) conjecture that issuing companies will try to avoid sharing underwriters with their competitors in order to limit the risk of sensitive information being leaked to rivals. The intuitive reasoning behind this conjecture goes as follows. While acting as underwriters, banks perform due diligence and other information collection activities in order to protect themselves from liability. In the process, they gain access to sensitive information on the issuer's strategy, which may include e.g. details on the issuer's customers, products, and R&D projects. If this information were to get into the hands of a competitor, it could give the rival firm a strategic advantage. The issuer is likely to be concerned about the increased risk of information leakage resulting from contact between the underwriter and the competitor if the underwriting bank is shared with a major rival. Asker and Ljungqvist (2006) argue that, if this is the case, the company's choice of investment bank is, in fact, limited by existing bank-firm relationships.

Asker and Ljungqvist (2006) point out that the information spillover conjecture described above could explain why issuing firms commonly maintain a close relationship with only one

investment bank. This "stickiness" of underwriting relationships has been previously researched by Ljungqvist, Marston, and Wilhelm (2005, 2006), who found that previous bank-firm relationships play an important part in determining how firms choose their underwriter in debt and equity issues. Asker and Ljungqvist (2006) note that the tendency to favour a single bank could also be a consequence of capacity constraints present in the banking industry. Since there is only a limited number of banks that have the necessary resources to execute large or complex transactions, it could be impossible for companies to keep multiple banking relationships while at the same time avoiding sharing a bank with a rival. As is well known, commercial banks have made strong headway in the field of securities underwriting in the U.S. after the restrictions imposed by the Glass-Steagall Act were first relaxed and then later completely lifted. Asker and Ljungqvist (2006) show in their paper that the entry of commercial banks has resulted in the exclusivity of bank relationships diminishing significantly during the 1990s.

Asker and Ljungqvist (2006) test the information disclosure conjecture empirically by examining the propensity for bank-rival relationships to affect the choice of underwriter. They use a sample of 5,272 equity deals and 12,453 debt deals, executed between 1975 and 2003 by top-10 companies in each four-digit SIC industry as measured by sales. Asker and Ljungqvist (2006) find that in a probit specification, a bank's relationship with a major rival has a statistically significant negative effect on underwriter choice. In other words, a bank's probability to be chosen as underwriter by a company is decreased if the bank has acted as underwriter for a competitor.

There are two issues that need to be tackled in order to verify the significance of information spillovers. First, Asker and Ljungqvist (2006) note that a bank with a rival client could actually be more attractive to a company than one that has no such clients because of the industry experience the bank has accumulated through advising companies within a certain industry. The industry expertise of the bank could thus have an opposite effect on the underwriter choice compared with the potential information spillovers. Second, sharing an underwriter with a major rival might be useful for a company since information could be transmitted both ways. Although a company will try to avoid having its own sensitive information leaked, it might be able to gain access to information on its rivals by using a common investment bank with them. The two issues presented above pose an empirical challenge since they "contaminate" the coefficients of the probit specification.

Asker and Ljungqvist (2006) counter the industry expertise issue by examining how the behaviour of two rival companies is affected by the merger of their relationship banks. Asker and Ljungqvist (2006) hypothesize that if companies are concerned about the possibility of information leaking to their rivals, the probability of the companies switching to another bank should increase. By examining the underwriter switching probability in connection with bank mergers Asker and Ljungqvist (2006) manage to keep the effect of industry expertise constant while at the same time increasing the probability of information leakage. Although cases of bank mergers are quite scarce in the sample examined by Asker and Ljungqvist (2006), they find that the probability of a company switching away from a bank increases clearly when its relationship bank merges with a bank that has acted as underwriter for a rival. It seems thus that the fear of information spillovers outweighs the positive effect from a bank's industry expertise.

Asker and Ljungqvist (2006) account for the potential benefit from gleaning information on a rival firm by examining situations where the rival switches firms. In this situation, the former bank of the rival should become more attractive for a company since it makes it possible to get information on the rival without the risk of compromising the company's own information. Asker and Ljungqvist (2006) hypothesize accordingly that the probability of bank to be chosen as underwriter by a company should increase if a rival has switched away from that bank. Asker and Ljungqvist (2006) find strong empirical support also for this hypothesis.

Asker and Ljungqvist (2006) conclude that when choosing underwriters, the potential for information spillovers is at least as important for the issuer as the reputation of the underwriter or other factors that are commonly noted in research, such as market making or analyst coverage provided by the underwriting bank. Issuers avoid choosing a bank as their underwriter if the same bank has acted as underwriter for a product-market rival of the issuer in order to avoid confidential information being leaked to the rival. This implies that endogenous limits exist for the market power of investment banks. The sensitivity of firms to the possibility of information leaks implies that no single firm is likely to achieve a dominant market share among clients within a certain industry. Another implication for inter-bank competition is that it is possible for new players with sufficient credibility, such as commercial banks, to enter the market with success. The empirical results of Asker and Ljungqvist (2006) seem to confirm this observation. The findings of Asker and Ljungqvist

(2006) also suggest that existing bank-firm relationships are not as important for the underwriter choice as has been previously argued because of potential information spillovers.

Although the analysis presented in this thesis is largely based on Asker and Ljungqvist (2006), the focus of the thesis is on a different area of investment banking, namely M&A advisory services. It seems that little research exists to date that would examine whether the issue presented by Asker and Ljungqvist (2006) in relation to underwriting is relevant also in M&A advisory services. Calomiris and Singer (2003) are among the few to have approached the subject, although from a slightly different angle. They study conflicts of interest that may arise in relation to hostile takeovers because the acquirer's advisor is currently advising or has recently advised the target company. In such situations, it is possible that the acquirer benefits from private information received through its advisor. The study by Calomiris and Singer (2003) is of particular interest for the purposes of this thesis in that it acknowledges the possibility that overlapping bank-client relationships could restrict the ability of investment banks to attract new clients. Although it has to be noted that the sample used in the empirical tests done by Calomiris and Singer (2003) is fairly small, the study contains some interesting anecdotal evidence on transactions in which the potential for conflicts of interest did materialize.

In hostile takeovers, the source of potential conflicts of interest is fairly clear-cut. If the acquirer were to receive private information concerning the target company's value, it might use this information for its own benefit when setting the price it offers for the target company. As a result, target shareholders might receive less money for their shares than they would have received in a situation where the acquirer had no private information concerning the target. As Calomiris and Singer (2003) note, however, the concentrated nature of the investment banking industry means that large companies most likely have some sort of relationship with a substantial proportion of investment banks. In addition, the need to disperse risk and to pool resources means that in large deals, there are usually several financial institutions involved. Consequently, it seems plausible that situations where the acquirer's investment bank has also represented the target company in some position are not uncommon.

Calomiris and Singer (2003) provide some examples of situations where investment banks have been accused of misusing private information received from companies in relation to an earlier mandate. In August 2003, the U.S. car parts manufacturer Dana Corporation filed a

suit against the investment bank UBS alleging that the bank had used confidential information to help rival ArvinMeritor Inc. launch a takeover bid against Dana Corp. Before filing the suit, Dana Corp. had rejected the bid by ArvinMeritor Inc. UBS had been a lender to Dana Corp. and had also advised the company on a planned joint venture involving the company and Detroit Axle, and axle production facility. The latter activity had overlapped with assisting ArvinMeritor Inc. in preparation of its takeover bid for Dana Corp. UBS defended itself by stating that its relationship with ArvinMeritor Inc. had preceded advising Dana Corp. and that it had not received any non-public, material information. The case between Dana Corp. and UBS was settled out-of-court on undisclosed terms in late 2003. In this case, the potential for a conflict of interest appears to have been fairly high. The investment bank was simultaneously advising one company, while simultaneously assisting another company in preparing a hostile bid for the first company. It is likely that the bank had access to private information concerning the first company, which could have provided the bidder an advantage in preparing the hostile bid.

Another case mentioned by Calomiris and Singer (2003) involved a hostile takeover situation between Computer Associates International Inc. (CA), who was the bidder, and Computer Sciences Corp. (CSC), the target. In March 1998, CSC filed a suit against the investment bank Bear Stearns who acted as advisor for CA. In the suit filed by CSC, it sought to stop Bear Stearns from advising CA on the grounds that the bank was fraudulently using material, non-public information about CSC obtained in a non-related transaction. This case is different from the Dana-UBS case in that the bank had not been in direct contact with the target. Instead, CSC claimed that Bear Stearns had received the information when advising Equifax Inc., a credit-information company, in connection with a proposed joint venture between Equifax and CSC. Bear Stearns denied the claims presented by CS stating that the bank had never been retained by Equifax in anything related to CSC. Therefore, the bank claimed, it would not have had access to any confidential information concerning CSC. The lawsuit was dismissed in its entirety by the court in August 1999.

The cases presented above indicate that conflicts of interests stemming from overlapping bank-client relationships do occur and that occasionally they even lead to litigation between banks and their clients. Calomiris and Singer (2003) note that this overlapping of bank-firm relationships creates incentives for firms to restrict the flow of private information by requiring assurances from the bank to maintain the confidentiality of the information, i.e.

confidentiality agreements. In addition, banks have the incentive to use internal restrictions for the use of confidential information even when the client has not requested such action. Calomiris and Singer (2003) argue that this incentive exists because such internal measures have an effect on the volume of future business for the bank.

In the empirical part of their study, Calomiris and Singer (2003) examine a sample of 52 hostile transactions announced between 1993 and 2003, where the market capitalization of the target company was in excess of $1 billion. They find that in the majority of the transactions the investment bank advising the acquirer had represented the target company in some way or the other. Calomiris and Singer (2003) find evidence of several types of relationships having existed between the bank and the target where information could have been exchanged: The banks had 1. advised companies in a transaction, 2. acted as member of a loan syndicate, 3. acted as underwriter in a new issue, and 4. advised in relation to a poison pill. In 33 cases, the relationship had existed no more than five years before the hostile transaction while in 17 cases, the relationship had occurred no more than two years before the transaction. Based on these figures, Calomiris and Singer (2003) conclude that potential conflict of interests are common in the investment banking industry. Calomiris and Singer (2003) proceed to examine acquisition premia in their sample of transactions in order to determine whether private information could have had an effect on pricing the transaction. Since the sample size used in the empirical tests is small, the statistical significance of any results obtained can be questioned. It suffices to say that Calomiris and Singer (2003) find no strong evidence in favour of their hypotheses.

Walter (2003) examines conflicts of interests within the financial services industry on a conceptual level and proposes that there are essentially two types of conflicts of interests that financial firms have to face. First, conflicts can arise between the firm's own economic interests and the interests of its clients. This group of conflicts of interests includes e.g. tying credit decisions together with the client's use of other services provided by the firm, bankers sitting on boards of non-financial companies and using their power to the benefit of the bank, the practice of "spinning" IPO shares, and front-running, i.e. executing proprietary trades in advance of large client trades. The second type consists of conflicts of interest between a firms clients, or between types of clients, that result in the firm favouring one client at the expense of another. Walter (2003) mentions two issues of this type, namely the misuse of private information received from a client to the benefit of another client and the

incompatibility of client interests. The latter issue includes situations where a financial firm has a relationships with two or more clients who themselves have a conflict. The type of conflict examined by Asker and Ljungqvist (2006), Calomiris and Singer (2003), and also in this thesis, can be characterized as being part of the second major category of conflicts in Walter's (2003) method of classification. In addition to the two categories mentioned above, Walter (2003) notes that conflicts of interests can be multidimensional, i.e. spanning across multiple stakeholders and conflicts simultaneously. As an example of this, Walter (2003) cites the Enron case where the roles of all parties involved were far from clear-cut.

The thrust of Walter's (2003) paper is in the proposed implications on competition between financial services firms that the exploitation of conflicts of interest may have. Walter (2003) posits that the probability of potential conflicts of interests and their costs increases as the scope of activities of financial firms is increased. As a result, economies of scope can be offset by the competitive consequences resulting from conflict exploitation. This proposition by Walter (2003) is on similar lines with Asker and Ljungqvist (2006) who argue that the market power of individual banks can be limited by existing client relationships within certain product-market industries.

Walter (2003) argues that legal and regulatory controls are not sufficient to constrain the exploitation of conflicts of interests. Constraints should be more firmly rooted in market discipline since this would make them more cost-effective and accurate. Walter (2003) states that as financial services organizations become more complex, regulatory responses may prove to be implausible and the importance of market discipline increases as a result. Walter (2003) suggest that there are several reasons for the increasing reliance on market discipline. First, market discipline leverages the effect of regulatory controls since, for example, the announcement of a regulatory penalty will most likely have an adverse effect on the market value and the credit rating of the penalized company. Second, market discipline complements regulatory measures in areas where an action is considered unethical or "unfair", but where the action can not be deemed outright illegal. Furthermore, market discipline provides constant feedback to managers using quantifiable measures that they are familiar with such as market value or revenues. Finally, Walter (2003) notes that the effectiveness of market discipline may be enhanced by the market structure and competition between groups of financial firms. The effect of market discipline is thus likely to be better when there is a variety of specialized players such as commercial banks, insurance companies, and fund

managers operating in the market instead of a group of monolithic firms with similar structures.

2.2 Investment banking

2.2.1 Recent trends and legislative changes

2.2.1.1 Overview

In this chapter, I present a brief review of some of the trends and legislative changes that have had a role in shaping the competitive environment in which investment banks operate.

2.2.1.2 The repeal of Glass-Steagall

The 65-year period, during which commercial and investment banking in the U.S. were required to be kept separate by the Glass-Steagall Act, was brought to an end in 1999 by the advent of the Gramm-Leach-Bliley Act. Although the barriers of commercial and investment banking had been crumbling even before the repeal of Glass-Steagall, the event marked a significant upheaval in the competitive landscape of investment banking. Pure investment banks that had traditionally dominated the business of underwriting were suddenly faced with fierce competition from giant commercial banks who had the advantage of sheer size on their side. In addition, commercial banks could compete for clients by offering the complete range of their services in connection with underwriting or advisory services.

In its original form, the Glass-Steagall Act (or, more accurately, the Glass-Steagall provisions of the Banking Act of 1933) essentially separated commercial and investment banking, which meant that investment banks could not accept deposits and commercial banks could not underwrite, invest in, and distribute corporate securities (Hendrickson 2001). While the provisions of the Act were formally not lifted until 1999, court decisions and actions by financial regulators had resulted in the relaxation of the Glass-Steagall provisions long before its repeal. For example, bank holding companies were allowed to underwrite securities through affiliated companies, given that income from these activities did not exceed a certain level. In the end of the 1990s, it became apparent that the financial services industry was essentially ignoring the Glass-Steagall provisions. In 1998, Citicorp and Travelers Insurance announced their plan to merge, thus creating a banking and insurance conglomerate that was quite obviously not allowed by the Glass-Steagall Act. This event acted as a catalyst for

regulatory reform that resulted in the Glass-Steagall Act being repealed in 1999 (Hendrickson 2001).

Commercial banks have responded to the new opportunities that have opened up for them by either developing in-house capital markets divisions or acquiring investment banks. It seems that a number of commercial banks have been successful in securing a foothold not only in the field of underwriting securities but also in the field of M&A advisory services. To name a few, such banks as Citigroup and Banc of America have become regular names in the top-10 of M&A and equity underwriting league tables.

2.2.1.3 The Global Research Analyst Settlement

In 2002, a settlement was reached between ten leading U.S. investment firms and the U.S. Securities and Exchange Commission (SEC), the National Association of Securities Dealers, Inc. (NASD), the New York Stock Exchange (NYSE), and state regulators who had conducted an investigation into conflicts of interest within the banks. The investigation had found that investment banking interests had had an undue influence on securities research conducted at brokerage firms. The terms of the settlement require that the investment firms adopt several measures that were designed to eliminate the conflicts of interest that had been uncovered by the investigation. The main points of the settlement are summarized below[2]:

- The investment firms are required to insulate equity research from investment banking
- The "spinning" of IPOs is banned, i.e. IPO shares cannot be allocated to company executives who are in a position to influence decisions on the use of investment banking services
- For a five-year period, brokerage firms are obligated to provide clients with research produced by independent research firms
- The firms must publish all analyst recommendations, including target prices and buy or sell recommendations
- The firms have to pay significant monetary sanctions

The settlement has had the effect of shaping new rules of conduct not only for the ten firms subject to the settlement, but also for other investment firms who have been voluntarily adopting terms of the settlement as industry best practices. As a consequence, interactions

[2] Press release from the Attorney General of the State of New York, December 20, 2002. Available online at http://www.oag.state.ny.us/press/2002/dec/dec20b_02.html.

between equity research analysts and investment bankers have been reduced significantly in order to avoid the appearance of undue influence by investment bankers over research analysts.

2.2.1.4 Investment bank consolidation

The changes in U.S. bank regulation that culminated with the Gramm-Leach-Bliley Act coming into force also acted as a catalyst for the consolidation of the financial services industry. Although bank consolidation had been a prominent trend with respect to non-U.S. banks already in the late 1980s and throughout the 1990s, the consolidation of U.S. financial institutions had been restrained by the Glass-Steagall Act (Saunders 1999). After these restrictions started to ease gradually and were, in the end, completely lifted, U.S. banks have undergone a wave of consolidation that has also affected the investment banking industry.

It has to be noted, though, that deregulation is only one of the several factors that lies behind the trend of consolidation within the banking industry. Berger et al. (1999) mention technological progress, improvements in financial conditions, and the aim to reduce accumulated excess capacity as other possible drivers of consolidation among financial institutions. This is especially the case with commercial banks, since the consolidation of investment banks seems to have been driven more by geographical expansion or the acquisition of capabilities in a specific area of investment banking.

Consolidation of commercial banks and investment banks was especially active in the mid-to-late 1990s and the beginning of the 2000s. Some of the most notable transactions of that period include the merger of J.P. Morgan & Co. and Chase Manhattan in 2000, the merger of UBS and SBC in 1998, and the merger of Travelers Insurance with Citibank to form Citigroup in 1998. Examples of commercial banks acquiring investment banks or brokerages include the acquisitions of Kleinwort Benson and Wasserstein Perella by Dresdner Bank in 1995 and 2001, respectively, the acquisition of Dillon Read by SBC in 1997, the acquisition of Paine Webber by UBS in 2000, and the acquisition of Hambrecht & Quist by Chase Manhattan in 2000.

Traditional British merchant banks were among the group of banks that was most affected by the structural changes that took place in the industry during the 1990s. In the 1980s, the City of London used to be dominated by such banks as S.G. Warburg, Schroders, Kleinwort, and Barings, many of which dated centuries back. After U.S. investment banks entered the

market, many of the British investment banks found themselves lacking in scale and unable to adapt to the more client-oriented style of U.S. banks. This meant that many of them could not continue operating independently and had to join forces with their foreign competitors. Of the banks mentioned above, S.G. Warburg was acquired by SBC, the investment banking arm of Schroders was purchased by Citigroup, Kleinwort by Dresdner Bank. Barings collapsed in 1995 as a result of Nick Leeson's infamous future trades.

2.2.2 The role of investment banks in mergers and acquisitions

2.2.2.1 Overview

In this chapter, I review the literature that investigates the role played by investment banks in M&A transactions. It appears that there is no commonly accepted theoretical framework that would explain this role. However, there is some research that examines the function of investment banks on a more practical level. The question that needs to be answered in this context is, what are the benefits that firms perceive can be achieved by using the services of an investment bank.

McLaughlin (1990) characterizes the role of investment banks by dividing the services provided by banks in connection with M&A transactions into three categories: (1) *Prior search*, i.e. locating potential bidders or targets, (2) *Effort*, i.e. work done to complete transactions, seeking higher bids for target companies, hostile defenses, and negotiating, and (3) *Offer evaluation*, i.e. advising on bidding strategies, the offer price, and the accept/reject decision, and evaluating the potential for competing bids. This categorization and the fact that firms hire investment banks to perform some or all of these services for them implies that banks have a comparative advantage in (1) collecting and processing information and (2) executing transactions. This advantage can be explained by economies of scope and scale and the experience accumulated through completing a large number of transactions.

Kale et al. (2003) conclude that in offering these services investment banks are carrying out two distinct roles. First, banks help companies to carry out transactions with higher expected synergistic gains by identifying better M&A opportunities and by structuring the transactions more efficiently. Second, banks offer advice on strategic activities, which benefit the bank's client at the cost of the opponent. For the bidder's advisor this involves seeking the completion of the transaction with the lowest possible offer price. Conversely, the target

company's advisor aims at maximizing the premium paid to the target company's shareholders.

Hunter and Walker (1990) argue that there are several benefits that can be achieved by using intermediaries in mergers and acquisitions. The first group of benefits assumes that intermediaries possess an advantage in performing the search function, i.e. seeking potential merger candidates, when compared to firms themselves. If intermediaries are indeed more efficient in searching for potential merger partners it means that the quality of matches can be improved and the speed at which matches are found can be increased. Furthermore, intermediaries can provide a level of anonymity to firms who are contemplating a merger, which makes it possible for firms to engage in preliminary discussions even before the start of official merger negotiations. The issue of anonymity is examined in detail by Shleifer and Vishny (1986). An additional benefit is that investment banks may have specialized knowledge about firms, including details on the financial or market potential of companies.

Hunter and Walker (1990) suggest further that the use of intermediaries can be beneficial even if it is assumed that investment banks have no advantage in seeking potential merger candidates, i.e. firms could as well search for partners on their own. The reasoning behind this argument is based, first of all, on the fact that information collected by firms comes at a cost. If firms were to collect information by themselves but mergers did not materialize, the information would be wasted. By using intermediaries, this waste of costly information is avoided, which is beneficial from the society's point of view. Hunter and Walker (1990) also note that firms seek merger partners only at certain times, i.e. when they have free cash flow, poor investment opportunities within the firm, or as a defensive tactic. Merger intermediaries, however, are constantly searching for potential merger opportunities, which means that merger candidates can be provided to firms even at times when the firm itself is not actively seeking a partner. Hunter and Walker (1990) suggest that this results in conservation of information.

The benefits presented above that are related to performing the search function and the costs of collecting information are fairly intuitive, which is also visible in their frequent appearance in literature. Hunter and Walker (1990) contribute to this literature by arguing that, in addition, investment banks acting as intermediaries in mergers and acquisitions have a role in providing a mechanism by which merger property rights are assigned to principals. The

reasoning behind this idea goes as follows. Firms seek mergers in order to obtain a gain derived from joint production possibilities or economies of scale or scope. Assuming that the gain from the merger is distributed equally among the buyer and the seller, neither party has the incentive to actively search for merger partners. This is logical because the firm will get the same share of the gain whether it actively seeks a merger partner or just passively waits to be discovered by another firm. If the search for merger candidates were performed by firms themselves, it would thus result in an equilibrium where firms underengage in seeking mergers. Hunter and Walker (1990) argue that investment banks acting as intermediaries in the merger market can alleviate this inefficiency.

In a market where firms perform the search for merger partners by themselves, efficiency could be achieved by imposing an allocation rule where the contacting firm would receive the whole of the surplus less a compensation to the contacted firm. The compensation to the contacted firm would induce it to accept the merger instead of merely waiting for the next opportunity. The problem with this rule is that it would have to be imposed beforehand since contacted firms have no incentive to give up their gain from the merger once the match has been made. Hunter and Walker (1990) propose that by introducing intermediaries, the paradox can be resolved. Intermediaries should receive the gain from the merger less a compensation paid to the two merging firms that should equal the value that firms would have received had they continued the search. Hunter and Walker (1990) conclude that the extent of efficiency gains achieved from introducing investment banks as merger intermediaries is dependent on how merger fee contracts succeed in directing the effort of bankers so that it is optimal for their clients.

In the remainder of this chapter, I follow the theoretical framework presented by Servaes and Zenner (1996). They suggest that investment banks have three important functions in the acquisition process:

1. Reducing transaction costs
2. Reducing information asymmetry between acquirers and targets
3. Reducing agency costs in the acquiring firm

I will review each of these arguments next and present an overview of research related to each argument.

2.2.2.2 Reduction of transaction costs

According to Servaes and Zenner (1996), the first function of investment banks in acquisitions is to reduce transaction costs. The basis of this argument comes from more general studies on the role of financial intermediaries. Benston and Smith (1976) propose that transaction costs are the main reason for the existence of financial intermediaries. Their argument is that financial intermediaries have a comparative advantage in producing financial commodities because of (1) economies of specialization, (2) scale economies in information acquisition, and (3) reduction in search costs.

Benston and Smith (1976) view market makers as the most basic form of financial intermediaries. They provide a place where potential buyers and sellers can meet, thus lowering information costs for market participants. A more sophisticated form of financial intermediary is a dealer, who also takes a position at his own risk in the asset that is the target of the transaction. Both market makers and dealers exist because they reduce transaction costs. Servaes and Zenner (1996) propose that the framework presented by Benston and Smith (1976) can be extended to explain the use of investment banks in acquisitions. They argue that, first of all, investment banks act as a sort of market maker by bringing together potential acquirers and targets. In addition, investment banks may be able to perform the tasks of valuing the target and putting together a bid at a lower cost than individual firms.

It seems quite clear that investment banks have both economies of specialization and scale economies in bringing together potential acquirers and targets. Investment banks constantly follow a large number of companies in search of potential acquisition opportunities. This requires dedicated resources, which individual firms do not possess. Furthermore, investment banks have the benefit of having completed a large number of acquisitions before, which should, at least in theory, give them an advantage in finding the best candidates for a successful acquisition. Compared to individual firms, investment banks are thus able to perform the process of finding potential acquirers and targets with lower search costs.

Servaes and Zenner (1996) hypothesize that firms are more likely to rely on investment bank advice if the acquisition will entail high transaction costs. They also posit that firms are more likely to use top-tier investment banks in cases of high transaction costs. They proxy transaction costs by two sets of variables, the first linked to the complexity of the acquisition, and the second set related to how much prior acquisition experience the acquirer has. A

transaction is deemed complex if it is a hostile takeover, if there is a bidding contest, if the acquisition is paid for with stock, or if the transaction is large. The results of the empirical tests support the first hypothesis quite firmly with four of the five proxies significant and all five having the predicted sign. Firms are more likely to use investment bank advice in large, hostile transactions in which at least some securities are used as payment, and when the firm has less acquisition experience.

Kale et al. (1998) confirm the results of Servaes and Zenner (1996) not only for bidders, but also for target companies. Kale et al. (1998) report that both groups of firms are more likely to employ advisors in complex deals, which supports the transaction cost motive for using investment bank advice. In a similar vein, Kale et al. (2003) find that bidders are more likely to use an advisor when the deal is hostile, the value of the deal is large, and the bidder has less acquisition experience. Da Silva Rosa et al. (2004) also provide evidence in support of the view that investment banks are used as advisors because it reduces transaction costs. They use a sample of 801 transactions where the bidder was an Australian company to investigate the factors that affect whether a bidder uses an advisor or not. The results of their empirical tests indicate that bidders are more likely to use an advisor when the deal was complex in nature, i.e. when the deal was large, hostile, involved a listed or diversified target, or when payment was made using other means than cash. To summarize, the empirical evidence supports the view that the choice between hiring an advisor or not is affected by the complexity of the deal. In complex deals where transaction costs are expected to be higher, companies resort more frequently to investment bank advice.

Servaes and Zenner (1996) find evidence supporting their transaction cost hypothesis in that first-tier investment banks are more likely to be involved in large acquisitions performed by companies with little acquisition experience than second-tier banks. Contrary to their hypothesis, however, they find that first-tier investment banks are less likely to be involved in hostile transactions. With regard to this particular question, the results of Kale et al. (1998) are two-fold: while target companies are more likely to employ a first-tier advisor in complex deals where transaction costs are assumed to be higher, bidders show no significant preference for first-tier banks in such deals. Rau and Rodgers (2002) present findings in line with Servaes and Zenner (1996) and Kale et al. (1998) suggesting that a bidder is less likely to hire a top-tier advisor if the acquisition is hostile. Using Australian data, da Silva Rosa et al. (2004) report similar results that are inconsistent with the transaction cost hypothesis in

finding that bidders actually prefer lower-tier advisors in complex deals. Servaes and Zenner (1996) together with Kale et al. (1998) point out that the conflicting results might be caused by a supply side issue instead of a demand side issue. Anecdotal evidence suggests that some top-tier banks might avoid advising hostile bidders because of reputation concerns.

2.2.2.3 Reduction of information asymmetry

Servaes and Zenner (1996) propose that the second role of investment banks is to reduce information asymmetry between acquirers and targets. Kesner et al. (1994) note that investment banks have the ability to quickly and effectively collect and process information from the capital markets, which makes them well suited for reducing informational asymmetries between market participants. In capital raising, this function of investment banks is more clear-cut than in acquisitions. Because issuers have better information on the value of the security they plan to issue than anyone else, investment banks are needed to certify the value of the security to the markets. Investment banks build (or lose) their reputation capital in the process, since they have to come to the market repeatedly (Beatty and Ritter 1986). Chemmanur and Fulghieri (1994) show in a theoretical paper that in this setting, investment banks have the incentive to produce accurate information on the value of the securities even though it is costly for them. It reduces the risk that the credibility of the bank is affected by poor post-issue performance of the issued securities, which in turn would lead to lower fees for the bank in the future.

Kale, Kini, and Ryan (1998) point out that in acquisitions, the role of investment banks who act as advisors is more complex than in security issues because (1) both parties are at least partially uninformed, (2) the advisor performs multiple functions for the client, and (3) the other party in the contest may also have an advisor. This means that the distinction between uninformed and informed is not as clear as in issues of new securities. Although the target is better informed about the stand-alone value of the target company, the bidder may have better information on the potential synergy gains that could be reached through the acquisition. In the capital-raising situation the privately informed issuer of securities hires the advisor to convey the value of the securities to the public, while in an acquisition the uninformed bidder employs an advisor to evaluate the value of a target who may even be hostile to the idea of being acquired. However, it is also commonplace that the target hires an advisor in order to evaluate the value of the acquirer and the value of the combination of the two companies.

Intuitively, it seems plausible that acquirers would be more likely to resort to advice from investment banks when they are not familiar with the target company's business, i.e. when there is a great degree of information asymmetry. In this situation, investment banks can leverage their industry expertise and experience from earlier transactions in order to evaluate the target company for the benefit of the acquirer. Servaes and Zenner (1996) present four types of situations in which the need for investment banking advice is expected to be greater. First of all, if the target operates in an industry that is unrelated to the acquirer's industry, the acquirer does not usually have the industry knowledge required to evaluate the target. Second, if the acquisition is not a complete takeover, but instead an acquisition of specific assets or a partial interest in the target, it is likely that information needed to evaluate the plausibility of the acquisition is not readily available. Third, if the target operates in multiple industries, the acquirer is unlikely to have enough information on all of the industries. Finally, in a situation with multiple bidders, the first bidder has to the identify the best potential target within the entire universe of companies, which is a task usually performed by investment banks. According to Servaes and Zenner (1996) bidders entering the bidding after the first one are thus less likely to require investment bank advice.

As explained above, Servaes and Zenner (1996) posit that the likelihood of a firm to hire an investment bank is related to the degree of asymmetric information between the acquirer and the target. In their empirical tests, they proxy asymmetric information problems by industry relatedness; whether the acquisition is a complete takeover, an acquisition of assets, or an acquisition of a partial ownership interest; the number of industries in which the target operates; and whether or not the acquirer was the first to make a bid for the target. The results of Servaes and Zenner (1996) are somewhat mixed. In line with their hypothesis, they find that acquirers are more likely to hire an investment bank when the target operates in multiple industries. However, the coefficient of the specific assets dummy variable is negative. Contrary to the hypothesis, this implies that firms are less likely to hire an investment bank if specific assets are acquired. As suggested by Tonteri (2004), it would seem plausible that in a sale of assets, the seller has to provide fairly specific information about the assets in order to ensure that buyers are interested. If this is the case in reality, the degree of information asymmetry might not be as great in asset sales as Servaes and Zenner (1996) argue.

Rau and Rodgers (2002) investigate what affects how firms choose between first-tier and lower-tier banks. If first-tier investment banks are more efficient in reducing information

asymmetry than banks with a lower reputation, it could be expected that acquirers choose a first-tier bank when the level of information asymmetry is greater, i.e. when the target operates in multiple industries or in a different industry compared to the acquirer. The results of Rau and Rodgers (2002) are inconsistent with this proposition. Although they find that lower-tier banks are more frequently used in same-industry transactions, which supports the information asymmetry hypothesis, their evidence on how diversification of the target affects the choice points towards the opposite conclusion. In two out of three subsamples examined by Rau and Rodgers (2002), they find that when the target is not diversified, acquirers are, in fact, more likely to employ a first-tier bank.

Allen et al. (2004) examine the role of commercial banks as advisors in M&A transactions. They hypothesize that if the role of banks is to collect information, i.e. to reduce information asymmetry, commercial banks might have an advantage in doing this because of the information acquired through lending relationships. Allen et al. (2004) call this the *bank certification effect*. However, they note that the conflicts of interest that commercial banks may be faced with work against the positive certification effect. The empirical results of Allen et al. (2004) support the existence of a net certification effect, but only for target companies.

In addition to acting as advisors, investment banks can reduce information asymmetry between acquirers and targets by providing "fairness opinions", i.e. written evaluations of the financial terms of offers for the target firm (Bowers and Latham 2006). They are usually given in the form of a letter addressed to the board. An important motivation for obtaining fairness opinions stems from the legal responsibilities of firms' managers and boards. In the U.S., the so called "Business Judgement Rule" set forth in case law states that members of a board of directors are protected from liability whenever the action was (1) rationally based, (2) made in good faith that the action was in the best interest of the company, and (3) arrived in a timely manner (see, e.g. Bowers and Latham 2006; Kisgen et al. 2006). By purchasing a fairness opinion, the board effectively removes the legal risk related to the merger decision, since the board is then deemed to have made the decision with such diligence as is required by the Business Judgment Rule. The risk of litigation and, consequently, the importance of obtaining a fairness opinion is greater for the target management or board since they have to make sure that the price of the shares or assets being sold is sufficiently high. However, Kisgen et al. (2006) note that a fairness opinion can be useful for the acquirer as well, since

the opinion can specify the upper bound for the acquirer's bid, which limits the risk of the acquirer overpaying for the target.

As Bowers and Latham (2006) point out, obtaining a fairness opinion is costly and, in addition, it involves taking the risk that the opinion deems the deal to be unfair, which may then result in the deal being terminated. In addition, the value of a fairness opinion in reducing information asymmetry varies across transactions depending on the amount of public information available and the complexity of the transaction. Because of this, boards of directors do now always seek a fairness opinion before deciding whether to proceed with a transaction. In two related papers, Bowers and Latham (2006) and Kisgen et al. (2006) examine what influences the likelihood of a board of directors purchasing a fairness opinion.

The information asymmetry hypothesis, examined above in the context of advisory choice, is supported also by empirical findings related to fairness opinions. Bowers and Latham (2006) find that a board is more likely to obtain a fairness opinion in transactions which are characterized by greater information asymmetry. They hypothesize that information asymmetry is likely to be greater in transactions that occur in monopolistic industries, between dissimilar firms, or when either party has an informational advantage that results from its own behavior (e.g. when it has already obtained a fairness opinion while the other party has not). Although Bowers and Latham (2006) find no significant support for the first hypothesis, i.e. that the probability of obtaining a fairness opinion is related to industry structure, both the dissimilarity of firms and transaction-induced informational asymmetry appears to have a significant effect on the said probability.

Kisgen et al. (2006) present three hypotheses on the role of fairness opinions. The first hypothesis conjectures that the only role of fairness opinions is to provide legal protection for managers and the board of directors against lawsuits after the acquisition. Second, Kisgen et al. (2006) posit that the use of a fairness opinion actually leads to better transactions because it leads to more rigorous negotiations or to inferior transactions being rejected. The third hypothesis states that a fairness opinion acts as a signal of the quality of the transaction to shareholders because only high-quality transactions succeed in obtaining a fairness opinion. The last two hypotheses state thus that fairness opinions actually increase shareholder value, while the legal protection hypothesis is neutral in this respect. Although their evidence is somewhat mixed, Kisgen et al. (2006) find that fairness opinions add value for acquirers

while for targets, legal protection seems to be the only significant factor affecting whether the board chooses to obtain a fairness opinion or not.

2.2.2.4 Reduction of agency costs

The third argument brought forward by Servaes and Zenner (1996) is that investment banks reduce contracting costs in the acquiring firm. Servaes and Zenner (1996) draw a parallel to capital raising where investment banks monitor the quality of the firm and signal their findings to the markets. One reason why investment banks have the incentive to monitor issuing firms is that they are legally liable for misrepresentations in the prospectus. In this setting, the underwriting investment bank acts as an outside monitor of the issuing firm's affairs placing the management's efforts under scrutiny. Monitoring performed by the investment bank reduces agency costs by directing the efforts of the management into furthering the interests of shareholders instead of their own personal interest (see, for example, Easterbrook 1984; Smith 1986; Hansen and Torregrosa 1992). With agency costs reduced or eliminated, the amount of money raised from the issue of new securities becomes higher than in a situation where no monitoring is done by the investment bank. In addition to collecting a fee for its services, the investment bank's reputation is affected by the quality of monitoring, which gives the bank an additional incentive to monitor the issuing firm as closely as possible.

Servaes and Zenner (1996) state that although the incentives for monitoring are not as direct in acquisitions, the success of the investment bank in monitoring the firm has an effect on the bank's reputation, which acts as a powerful monitoring incentive. How is it then that investment banks could reduce agency costs in acquisitions? Servaes and Zenner (1996) suggest that without any outside monitoring, the management of a firm may have the incentive to perform acquisitions that are value-destroying for the shareholders. This may be the case because of hubris, where the management overestimates the value of the target company (Roll 1986), or because of the managements desire to "build an empire" by performing as many acquisitions as possible in order to grow the size of the company (Jensen and Meckling 1976). With the investment bank providing a fairness opinion on the value of the target company, the shareholders are better positioned to evaluate whether the acquisition is beneficial for them or not. It can also be argued that investment banks are likely to stay away from acquisitions that are deemed value-destroying in order to protect their reputation.

The involvement of an investment bank would thus act as a positive signal to shareholders of the acquirer.

Servaes and Zenner (1996) use insider ownership as their first proxy for a firm's need of monitoring and hypothesize that firms require less monitoring if insiders own large stakes in the company. This seems plausible, since share ownership aligns the management's incentives with other shareholders making them less likely to perform value-destroying acquisitions (Lewellen, Loderer, and Rosenfeld 1985). In addition to insider ownership, Servaes and Zenner (1996) proxy agency problems by the percentage of outside directors on the board of directors. According to Fama (1980), outside board members act as "referees" between managers and shareholders thus reducing agency costs. Byrd and Hickmann (1992) find that firms make better acquisitions when they have independent directors on their board. Accordingly, Servaes and Zenner (1996) hypothesize that having outsiders on the board reduces the probability that a firm uses investment bank advice in an acquisition. Servaes and Zenner (1996) also hypothesize that the potential for acquisitions motivated by hubris is greater when there is information about the market price of the target company is readily available, since in these cases only valuations that exceed the current market price lead to bids. To summarize, Servaes and Zenner (1986) posit that the greater the danger of agency conflicts the more likely a firm is to hire an investment bank. In addition, they posit that in these cases the firm is more likely to hire a first-tier bank than a second-tier bank.

Servaes and Zenner (1996) find little support for their hypothesis that the reduction of agency costs has an effect on whether a company chooses to hire an investment bank as an advisor or not. In addition, their results indicate that the question of reducing agency costs does not come into play in the choice between first-tier and second-tier investment banks.

In contrast to Servaes and Zenner (1996), Rau and Rodgers (2002) find statistically significant evidence in support of the agency cost hypothesis related to first-tier and second-tier banks. Rau and Rodgers (2002) depart from the methodology of Servaes and Zenner (1996) by controlling for the absolute size of the acquirer while Servaes and Zenner (1996) only control for the relative size of the target firm compared with the acquirer. Rau and Rodgers (2002) note that this matters because (1) a larger firm is more likely to use a top-tier investment bank than a smaller firm, (2) because Servaes and Zenner (1996) only examined the 100 largest acquisitions published each year in *Mergers and Acquisitions Magazine*, their results may not

be applicable to smaller firms, and (3) because some of the variables used by Servaes and Zenner (1996), e.g. insider ownership, are strongly dependent on the market capitalization of the firm.

Using the improved methodology described above, Rau and Rodgers (2002) find evidence in support of the view that top-tier banks are hired to certify the value of the deal in cases when there is high potential for agency problems, i.e., when bidders have larger boards of directors, less concentrated equity ownership and less insider ownership. Their results show that the size of the board is significantly positively related to the probability of hiring a first-tier investment banks, while the percentage of equity owned by insiders, blockholders, and unaffiliated blockholders are all significantly negatively related to the said probability. Although this evidence supports the notion that top-tier investment banks are hired as advisors because of their apparent value in reducing agency costs, Rau and Rodgers (2002) argue that their results are more consistent with the alternative hypothesis that top-tier banks are hired simply to ensure that a deal is completed. This is evident from the empirical results indicating that deals advised by first-tier banks are more likely to be completed.

In a study predating both Servaes and Zenner (1996) and Rau and Rodgers (2002), Thomas (1995) shows results consistent with the hypothesis that investment banks perform a certification role not only when underwriting new issues of securities, but also when advising companies in M&A transactions. Thomas (1995) notes that certain shareholder structures are more conducive to agency problems between the management and shareholders, which creates an increased need for certification services. Thomas (1995) hypothesizes that institutional investors have a special need for certification services because, first of all, their holdings tend to be small due to diversification. Second, even when the institutional investor has a large stake in a company, it has a greater need for certification than an individual investor because it is only acting as a trustee for the ultimate shareholder. As a consequence of the greater need for certification that institutional investors have, Thomas (1995) conjectures that institutional ownership increases the possibilities that a company hires an advisor in a M&A transaction and that the advisor is prestigious.

Using a sample of U.S. transactions, Thomas (1995) examines the effects of differing shareholder structures on the decision to hire an advisor and, when an advisor is hired, on how prestigious the advisor is. In the logit specification, Thomas (1995) controls for deal value,

market capitalization, D/E ratio, method of payment, and acquisition experience. The results of empirical tests performed by Thomas (1995) are consistent with the certification hypothesis. Thomas (1995) finds that ownership by institutional investors is a significant factor in the decision to hire an advisor and the decision to hire a top-tier advisor. However, in contrast with lower levels of institutional ownership that have a positive effect, crossing the 25-percent mark in institutional ownership seems to have a negative effect on the decisions. Thomas (1995) suggests that this could be due to the amount of conflicts between classes of shareholders decreasing when institutional owners are dominant class.

2.2.3 Investment bank choice

2.2.3.1 Overview

In this chapter, I briefly review the body of research that has tried to shed light on the factors that affect the choice of an investment bank to act as underwriter or M&A advisor for a firm. I begin by reviewing studies on underwriter choice, after which I present an overview of studies focused on how firms choose their M&A advisor. Although this thesis is focused on the choice of M&A advisor, I find that examining research related to underwriter choice is also in order since it seems plausible that there are common factors affecting both choices. In addition, research on M&A advisor choice is relatively scarce when compared with studies examining the choice of underwriter.

It has to be noted that although most studies have focused on the question from the point of view of the firm choosing an underwriter or advisor, recent research has pointed out that "it takes two to tango", i.e., matching a firm and an investment bank can be characterized as a two-sided process (see, e.g., Fernando, Gatchev, and Spindt 2005; Tonteri 2004). This suggests that future research should focus not only on how firms choose an investment bank, but also on how investment banks select the firms that they would like to do business with.

2.2.3.2 Choice of Underwriter

It seems to be widely accepted that reputation has a significant role in the competition for underwriting deal flow among investment banks. This is related to the certification function that investment banks have in underwriting, i.e., investment banks certify to less-informed outsiders that the securities being issued are worth buying (Beatty and Ritter 1986; Booth and Smith 1986). Firms that turn to investment banks for underwriting services are thus leveraging the reputation of the investment bank in order to ensure the success of the issue.

Empirical studies support the notion that there is a link between the reputation of the underwriter and the performance of the issue. Johnson and Miller (1988) along with Carter and Manaster (1990) find that the use of prestigious underwriters is associated with less underpricing in IPOs. In a similar vein, studying a sample of initial offerings from 1979 to 1991, Carter, Dark, and Singh (1998) find that the better the reputation of the underwriter, the less short-run underpricing there is in. They also report that the notoriously bad long-run performance of IPO stocks (Ritter 1991; Loughran and Ritter 1995) is better for stocks in IPOs with more prestigious underwriters. These results suggest that there is less "money left on the table" in IPOs underwritten by prestigious investment banks, which should translate into more capital raised for the issuing firm. However, it should be kept in mind that underwriters are also keen to avoid overpricing because of the negative effects on the bank's reputation that follow from overpricing an offering (Booth and Smith 1986; Nanda and Yun 1997).

Dunbar (2000) examined the various factors that affect the IPO underwriting market share of investment banks. Consistent with the findings of Booth and Smith (1986), he finds that initial overpricing has a negative effect on underwriter market share. He also reports that highly positive initial returns, i.e., too much money left on the table, are associated with negative market share changes. When put together, these results suggest that when competing for market share, a bank fares best when it succeeds in taking into account the interests of both the issuer and the investors. In addition, Dunbar (2000) finds that for established banks, long-run performance, industry specialization, analyst reputation, and association with withdrawals have a significant impact on market share changes.

Krigman, Shaw, and Womack (2001) studied why firms performing a SEO switched underwriters after completing their IPO. They report two main reasons for switching that emerged from a survey of executives from firms that had switched underwriters. First of all, firms switch underwriters because they trade up to more prestigious underwriters. This is in line with the studies mentioned above that focus on the effect of underwriter reputation. Second, issuers appear to buy additional and more influential research coverage by switching underwriters for their SEO. In effect, the issuers allocate a part of their underwriting fees into improving the frequency and quality of research coverage.

Some studies have noted that it is not only the frequency or quality of analyst coverage, as mentioned above, that matters in the competition for underwriting mandates, but that banks have also resorted to using optimistic research opinions as a competitive tool. Ljungqvist, Marston, and Wilhelm (2005) find that banks use optimistic research as a tool to win syndicate co-management appointments, which in turn often lead to lucrative lead management mandates later on. They find that this behavior was concentrated among less reputable banks, for which co-management appointments provide a way of getting a toehold and scaling the hierarchy of banks in a market where more reputable banks dominate the lead manager positions. Ljungqvist, Marston, and Wilhelm conclude, however, in another study (2006) that there is no evidence that analyst recommendation behavior has an influence on how likely it is for a bank to win a lead underwriting mandate. They find that, in their sample of underwriting deals from between 1993 and 2002, existing bank-issuer relationships and the bank's reputation were far more important factors in the competition for mandates.

The importance of long-term bank-firm relationships, as documented by Ljungqvist et al. (2006), is supported also by the findings of Yasuda (2005) who examined the choice of underwriter in the corporate-bond market. He finds that bank-firm relationships have a positive and significant effect on a firm's underwriter choice. Intuitively, it is not surprising that an existing bank-firm relationship increases the probability of the firm using the services of that particular bank when issuing new securities. If the firm switches to another bank, it is likely that there are frictions resulting from differences in operating procedures and other factors. The importance of personal relationships between the firm's management and the bankers responsible for covering the firm should also not be underestimated. In this respect, it could be interesting to investigate whether client firms follow senior bankers who make the switch to another investment bank.

In a related study, Ellis, Michaely, and O'Hara (2006) look at how investment banks compete for follow-on equity offerings. They construct a measure of banking competitiveness that takes into account the various dimensions of competition such as fees, pricing accuracy, analyst recommendations, distributional abilities, market making, debt offering capabilities, and reputation. Ellis et al. (2006) find that when choosing an underwriter for a SEO, companies are not attracted by any "last-minute tricks" by prospective underwriters, but instead focus more on the long-run performance of the underwriter. Investment banks who have maintained a positive outlook and acted as dominant market makers after underwriting

an IPO for a company are less likely to be replaced. Another interesting finding in the study by Ellis et al. is that investment banks do not seem to compete for underwriting mandates with their fees.

2.2.3.3 Choice of M&A Advisor

There are several key questions that are commonly raised in the literature related to M&A advisory services: What factors affect how firms choose an M&A advisor? Why do firms choose a top-tier investment bank as their advisor? How do commercial banks compare with investment banks as M&A advisors? In the following, I present a brief review of the extant research that has tried to tackle these and other questions related to the choice of advisor.

Rau (2000) studies the determinants of investment bank market share in mergers and tender offers. He posits two hypotheses: the *superior deal* hypothesis and the *deal completion* hypothesis. The first hypothesis predicts that the market share of an investment bank is determined by post-acquisition performance of the acquirer, while the latter hypothesis predicts that market share is dependent on the number of deals completed by the bank. Consistent with the deal completion hypothesis, Rau (2000) finds that the market shares of investment banks advising in mergers and tender offers are positively related to their ability to complete the deal. He finds no significant support for the superior deal hypothesis, which suggests that, as a determinant of market share, deal completion is primary to whether the deal actually adds value to the acquirer. As Rau (2000) notes, contingent fee structures that are widely used in mergers and tender offers act as an incentive for the bank to focus on completing the deal.

Rau (2000) also shows that top-tier banks complete a significantly higher proportion of their deals than lower-tier banks and that they use contingent fee structures more frequently. At the same time, acquisition-period returns to acquirers who are advised by top-tier investment banks are lower than for acquirers advised by lower-tier banks. This could imply that firms hire top-tier investment banks as advisors in order to ensure the completion of the deal. Another, more sinister explanation could be that given the incentives that arise from contingent fee structures, banks pursue deal completion even when it does not create value for their client.

The results of Rau and Rodgers (2002) are in line with the deal completion hypothesis set forth by Rau (2000). As noted above with regard to the role of investment banks in reducing

agency costs, Rau and Rodgers (2002) find that firms with a high potential of agency problems are more likely to hire top-tier banks than lower-tier banks. Furthermore, they find that acquirers are more likely to complete deals when they are advised by top-tier banks. Combining these two results, Rau and Rodgers (2002) conclude that top-tier banks are hired by managers with misaligned incentives in order to make sure that the deal is completed. Kale et al. (2003) also find a positive and significant relationship between the reputation of the advisor and the likelihood of the deal being successfully completed. Hunter and Jagtiani (2003) report similar results. Although Rau (2000) suggests that because of contingent fee structures, deal completion is the main objective for advisors, Kale et al. (2003) find evidence that advisors also act in the best interests of their clients instead of merely pushing to complete deals at any cost. Namely, they find that in multiple bidder contests, advisors with a higher reputation are more likely to be involved with an acquirer who withdraws from a potentially unprofitable acquisition or, alternatively, completes a profitable acquisition.

Allen et al. (2004) compare the role of commercial banks and investment banks in providing M&A advisory services. Although the Glass-Steagall Act did not prevent commercial banks from offering advisory services in competition with investment banks, its restrictions on securities underwriting meant that investment banks had a strong competitive advantage over commercial banks in that they could simultaneously offer both underwriting and advisory services. After the repeal of Glass-Steagall, competition between commercial banks and investment banks in the market for M&A advisory services has intensified.

Allen et al. (2004) hypothesize that because of the often long-standing lending relationships that commercial banks have with firms, they are better positioned to fulfill the certification role of M&A advisors than investment banks. During a lending relationship, banks are required to constantly monitor the financial position of the firm to whom the bank has lent money. In this process, they obtain private information about the firm, which assists them in providing a certification of the firm in an acquisition. This "certification effect" is offset by the possibility of conflicts of interests, i.e., the credibility of the bank's merger advice may be diminished by other objectives that the bank may have in the situation, such as potential future lending opportunities.

The empirical results of Allen et al. (2004) provide some support for their hypothesis. They find evidence of a net certification effect, but only for target firms. Moreover, it appears that

acquirer firms are more likely to hire a commercial bank as their advisor in the existence of a prior lending relationship between the acquirer and the bank. This highlights the importance of long-term bank-firm relationships in investment bank competition. However, it is unlikely that commercial banks have any special advantage when compared with "pure" investment banks given the existence of a prior bank-firm relationship.

Saunders and Srinivasan (2001) examine the connection between investment banking relationships and merger fees. They find that acquiring firms pay higher fees to investment banks with whom they have had a prior relationship and lower fees if they switch to a new bank. Saunders and Srinivasan (2001) also find that the higher fees are not compensated by better merger announcement returns to the acquirer. Put together, this suggests that acquiring firms perceive some non-fee related benefits from retaining a merger advisor even at the cost of higher fees or that they face switching costs from switching to a bank with whom they have had no prior relationship.

Although the effect of investment bank reputation has been more widely researched in connection with the choice of underwriter in security issues, there are some noteworthy studies that have examined how bank reputation influences the choice of M&A advisor. Kale et al. (1998) propose that firms employ advisors in M&A transactions when they perceive that they are at a disadvantage to the other party in order to "level the playing field". The perceived disadvantage could result from a size difference between the parties or from the presence of multiple bidders. Kale et al. (1998) find that when an advisor is employed, it is more likely to be a bank with a high reputation. This implies that firms view top-tier banks as being more capable in reducing the imbalance between the parties of the acquisition. The findings of Kale et al. (1998) also suggest that top-tier banks succeed in creating more value for target companies when compared to their lower-tier counterparts. Although this result does not hold for bidders, Kale et al. (1998) find that bidders also gain from employing top-tier banks because they are more successful in finding mergers that result in higher synergistic gains in total.

In line with Kale et al. (1998), Rau (2000) finds no evidence that employing top-tier banks would result in higher announcement-period returns for the acquirer. As mentioned above, the results of Rau (2000) thus only support the hypothesis that top-tier banks have an advantage in deal completion. Kale et al. (2003) point out that neither Kale et al. (1998) nor Rau (2000)

control for the reputation of the opponent's advisor and suggest that this might explain why reputation has little significance with regard to value creation. When controlling for relative financial advisor reputation, i.e. the ratio of the bidder advisor reputation to that of the target advisor, Kale et al. (2003) finds that wealth gains for both bidders and targets increase proportionally as the relative reputation of the advisor increases. This implies that advisors with a higher reputation could be associated with better mergers for both bidder and target firms. Finally, Saunders and Srinivasan (2001) report that acquirers are more likely to switch when their M&A advisor is not a top-tier investment bank. This is in line with the results of Krigman, Shaw, and Womack (2001) who examine underwriter switching.

3. Hypotheses

In this chapter, I present the hypotheses that I will test in this study. The hypotheses are based on the setup used by Asker and Ljungqvist (2006) and on research reviewed in chapter 2 above. I formulate two sets of hypotheses: The first set comprises the hypotheses related to the probability of a bank being chosen as advisor by an acquirer. The second set consists of the hypotheses that are related to the probability that a firm switches advisors in consecutive M&A transactions.

3.1 Advisor choice hypotheses

H1: The probability that an acquiring firm chooses a certain bank as its M&A advisor is decreased if the bank has recently advised one or more of the acquiring firm's product-market rivals.

When an investment bank acts as firm's advisor in an acquisition, it is likely that the advising becomes privy to a wealth of commercially sensitive information concerning the firm that is being advised. This information may consist of details on the firm's products, strategy, or its future prospects. As such, it would be harmful for the company if this information were to get into the hands of its rival companies operating in the same industry. If a firm chooses a bank as its advisor that also advises one or more of its product-market rivals, the risk of sensitive information being transmitted to the rival increases. As Asker and Ljungqvist (2006) point out, an explicit information leak from the advisor to the rival is not required, but rather the information can also be transmitted implicitly or accidentally. Asker and Ljungqvist (2006) describe this event as "information spillover".

Asker and Ljungqvist (2006) suggest that firms may want to limit the risk of information spillover through their choice of investment bank in connection with debt and equity underwriting. Consequently, firms may seek to avoid sharing an underwriter with their product-market rival. As explained above, the risk of information spillover is present also in the relationship between a firm and an investment bank that is acting as its advisor in an M&A transactions. It is therefore plausible that the hypothesis presented by Asker and Ljungqvist (2006) in relation to underwriting is also valid in the setting of M&A advisory. I thus conjecture that the probability of a bank being chosen as an advisor by a firm is decreased if the bank has recently advised one or more of the firm's product-market rivals.

H2: The probability that an acquiring firm chooses a certain bank as its M&A advisor is increased if the bank has recently lost a client that is a product-market rival of the acquiring firm.

Asker and Ljungqvist (2006) suggest that when a firm terminates a relationship with its former relationship bank, this provides other firms with an opportunity to exploit information that the bank has learned during its relationship with the firm. In addition to general industry knowledge, the bank has received company-specific information, both of which could be beneficial to other companies in the same industry. Moreover, there is no longer a risk of information being leaked to the firm that switched banks. Based on this, Asker and Ljungqvist (2006) propose that the propensity of a firm matching with an underwriter is increased when it has lost a client in the same industry as the first firm. Applied to M&A, I hence hypothesize that the probability of a bank being chosen as an advisor by company A is increased when it has lost a client, company B, that is in the same industry as company A.

It could also be argued that losing a client does not increase a bank's chances of being chosen as advisor by firms, but rather decreases them. Setting aside the potential benefits from industry knowledge and company-specific information that could increase the attractiveness of the bank, it is plausible to suggest that when a bank loses a client this sends a negative signal to other firms that are considering hiring the bank as its advisor. Firms do not switch relationship banks without a good reason, and other firms might thus question the quality of the services provided by the bank if it loses a client to one of its competitors. Accordingly, the loss of a client might actually have a negative effect on the bank's probability to be chosen as advisor by a firm in a probit specification.

H3: A bank's market share of a firm's M&A transactions in the prior 4 quarters is positively related to the probability that the firm chooses the bank as its M&A advisor.

Ljungqvist et al. (2005, 2006) find that an existing relationship with a bank is a strong determinant in how firms choose their underwriter when issuing debt or equity. The results of Asker and Ljungqvist (2006) also support this finding. In relation to M&A advisory, Saunders and Srinivasan (2001) report that firms seem to be ready to pay higher fees to banks with whom they have a long-term relationship, which suggests that firms see a benefit in having the same bank as their advisor over a longer period of time. I therefore hypothesize that an existing M&A advisory relationship increases the probability of a bank being chosen as a firm's advisor. I proxy the strength of the relationship by the bank's market share of the acquiring firm's M&A transactions in the prior 4 quarters.

H4: A bank's market share in the M&A advisory market in the prior calendar year is positively related to the probability that an acquiring firm chooses the bank as its M&A advisor.

H5: The Megginson-Weiss reputation measure of a bank is positively related to the probability that an acquiring firm chooses the bank as its M&A advisor, i.e. top-tier banks are more likely to be chosen than lower-tier banks.

I follow Asker and Ljungqvist (2006) and hypothesize that a bank's probability of being chosen as a firm's M&A advisor is positively related to the reputation of the bank. I use two proxies for the reputation capital of a bank. First, I use a bank's market share in the M&A advisory market in the prior calendar year as a crude proxy of the bank's reputation. This measure does not account for fluctuations in market shares in different years, but it should nevertheless be indicative of a bank's prestige as an M&A advisor. As the second proxy for bank reputation, I use a measure that was originally devised by Megginson and Weiss (1991) and has been later applied in numerous studies related both to underwriting and M&A advisory (See, e.g. Rau 2000, Aggarwal et al. 2000, Tonteri 2004). Details on how the measure is calculated are presented below in chapter 4.2.2. There is evidence that reputation has an important role in the selection of M&A advisors. Rau (2000) finds that top-tier banks are hired because of their deal completion ability, while Kale et al. (1998) suggest that firms use top-tier banks in order to reduce imbalances between merger parties. Kale et al. (2003) even find evidence of higher acquisition-related returns to both bidders and targets when top-

tier advisors are used. Put together, it is plausible that firms prefer to use advisors with a good reputation because of some perceived benefits that the firms think can be attained by using such advisors. I thus hypothesize that the probability that a bank is chosen as an M&A advisor by a firm is positively related to 1. the bank's M&A advisory market share in the prior calendar year (H4) and 2. the bank's Megginson-Weiss reputation measure (H5).

H6: The degree centrality measure of a bank is positively related to the probability that an acquiring firm chooses the bank as its M&A advisor.

H7: The eigenvector centrality measure of a bank is positively related to the probability that an acquiring firm chooses the bank as its M&A advisor.

Asker and Ljungqvist (2006) use measures adapted from the area of social network analysis to explain how firms choose their underwriter. They conjecture that banks that are better networked with other banks are more frequently chosen to participate in an underwriting syndicate. The role of networks has also been examined by Ljungqvist et al. (2005), who study underwriting syndicates, and by Hochberg et al. (2005) who focus on the effect of networks on the performance of venture capital syndicates. Asker and Ljungqvist (2006) use two measures, *indegree* and *eigenvector* centrality to quantify a bank's position in the network of all banks. It is plausible to think that especially in cases where multiple advisors are employed, existing connections between banks might influence the way in which advisors are chosen. Following Asker and Ljungqvist (2006), I thus hypothesize that better networked banks are more likely to be chosen as M&A advisors by acquirers. I depart slightly from Asker and Ljugqvist (2006) since I use *degree* centrality instead of *indegree* centrality. This follows from the fact that calculating *indegree* relies on the distinction between lead managers and co-lead managers in an underwriting syndicate, which is not applicable in M&A advisory. In addition to *degree*, I proxy a bank's position in the network banks by the *eigenvector* centrality measure. Details on how the measures are calculated are given in section 4.2.2.

H8: The industry expertise of a bank is positively related to the probability that an acquiring firm chooses the bank as its M&A advisor.

Following Asker and Ljungqvist (2006) I hypothesize that a bank is more likely to be chosen as M&A advisor by a firm when the bank has a high level of industry expertise. This hypothesis is based on the assumption that a bank who has executed a number of transactions as an advisor for firms within a certain industry has an advantage when compared with banks

that have no such experience. This advantage could be seen to follow from industry-specific knowledge that the bank acquires during the execution of a transaction. It is plausible that such industry knowledge facilitates the bank's role as an advisor in future transactions that involve firms in the same industry. Accordingly, banks who have performed a large number of deals in a certain industry are likely to be perceived as experts in transactions in that industry and are thus more likely to be picked as advisors. Following Asker and Ljungqvist (2006) I proxy industry expertise by the combined concurrent market share of the bank's clients in the acquiring firm's three-digit SIC industry in the year of the transaction.

H9: A bank's ability to retain clients in consecutive deals is positively related to the probability that an acquiring firm chooses the bank as its M&A advisor.

I follow Asker and Ljunqvist (2006) and hypothesize that banks who have loyal clients are more likely to be chosen as M&A advisors. The hypothesis is based on the idea that banks who are able retain their clients in consecutive transactions, i.e. have loyal clients, are likely to have some unobservable but desirable qualities, such as good execution capability. In order to capture the effect of these unobservable factors, I calculate a measure of client loyalty based on how often the bank has been able to retain a client in consecutive M&A transactions. The hypothesis is that the probability of being chosen as a M&A advisor is higher for banks whose clients have been loyal, i.e. when the share of retained clients as measured from the number of all clients is high.

H10: The probability that a firm chooses a certain bank as it's M&A advisor is negatively related to the absolute difference between the value of the current deal and the average value of the bank's deals in the prior calendar year.

Asker and Ljungqvist (2006) suggest that a bank is unlikely to be chosen as an underwriter by a firm if the size of the current deal is much smaller or larger than the size of the bank's average deal. This could be due to capacity restraints that prevent the bank from underwriting deals above a certain size or the bank's decision not to act as underwriter in deals that are smaller than a certain threshold. I find it plausible that this hypothesis can be extended to M&A advisory as well. It is quite obvious that so called bulge-bracket investment banks do have a deal size limit, below which they do not get involved in a deal because of the lower fee potential of such deals. It could thus be argued that investment banks have a certain "deal size profile" that affects the matching of investment banks with client firms. Consequently, I

hypothesize that the probability of a bank being chosen as M&A advisor is negatively related to the absolute difference between the value of the current deal and the average value of the bank's deals in the prior calendar year.

H11:The level of concentration of an acquiring firm's industry is negatively related to the probability that the firm chooses a certain bank as its M&A advisor, given that the bank has recently advised one or more of the firm's product-market rivals.

Following Asker and Ljungqvist (2006), I hypothesize that in industries where a few big players dominate the market, companies are more concerned about the risk of sensitive information being leaked to their competitors because the potential impact of the information on the balance of the industry is higher. In a perfectly competitive industry, leaked information would arguably not have as much effect on the competitive balance between companies because the influence of individual companies is smaller than in oligopolistic industries. I proxy the competitiveness of an industry by a Herfindahl index of industry concentration. According to this hypothesis, the probability of the bank being chosen as M&A advisor for a firm, given that the bank has a relationship with a rival, is negatively related to the level of concentration of the industry of the rival companies.

H12: The probability that an acquiring firm chooses a certain bank as its M&A advisor is decreased if the bank is advising another firm in the same industry in the same quarter.

Asker and Ljungqvist (2006) suggest an alternative hypothesis for explaining the behavior of firms seeking to avoid sharing investment banks with their rivals. They propose that this behavior could be due to capacity constraints that prevent banks from acting as underwriters for several clients in the same industry within a limited time period. When applied to M&A advisory, I hypothesize that the probability of a bank being chosen as M&A advisor by a firm is decreased if the firm is advising another firm in the same industry in the same quarter. The bank is considered to be advising another firm in the same quarter whenever both deals are announced in the same quarter.

3.2 Advisor switching hypotheses

H13: The probability that a firm switches to using another bank as its M&A advisor in consecutive M&A transactions is increased if the present advisor merges with another bank that has a product-market rival of the firm as its client.

This hypothesis is built on the assumption that when two investment banks merge, company-specific information and industry knowledge that has been obtained from clients of the two banks is pooled in the merged entity and is thus available to both parties of the merger. If the two banks had clients that operate in the same industry, the merger of the two banks could increase the probability of information being transmitted from one client to its competitor. Asker and Ljungqvist (2006) conjecture that the increased risk of information spillover after the merger of two relationship banks can increase the propensity that a firm switches to using another underwriter in consecutive capital markets transactions. When applied to the setting of this thesis, I hypothesize that in consecutive M&A transactions, the probability of a firm switching to using another bank as its advisor is increased if the firm's current relationship bank has merged with another bank that has one or more clients that are top-10 product-market rivals of the firm.

H14: The probability that a firm switches to using another bank as its M&A advisor in consecutive M&A transactions is negatively related to the strength of the firm's relationship with its current advisor.

The reasoning behind this hypothesis is essentially the same as in H3 above. I thus hypothesize that a firm is less likely to switch to another advisor in consecutive M&A transactions when firm has a strong relationship with the bank. The strength of the relationship is measured as explained in H3.

H15: The probability that a firm switches to using another bank as its M&A advisor in consecutive M&A transactions is negatively related to the bank's M&A advisory market share in the prior calendar year.

H16: The probability that a firm switches to using another bank as its M&A advisor in consecutive M&A transactions is negatively related to the Megginson-Weiss reputation measure of the firm's current advisor.

These two hypotheses are parallel to hypotheses H4 and H5 above. As explained in connection with H4 and H5, I use the market share of the bank in the prior calendar year and the Megginson-Weiss measure as proxies for the reputation of the bank. I hypothesize that the probability that a firm switches away from a bank who has advised the firm in its previous M&A transaction decreases with 1. the bank's M&A advisory market share in the prior

calendar year and 2. the bank's Megginson-Weiss reputation measure. For reasons explained above, firms seem to prefer high-reputation banks over lower-reputation banks, which I expect to be reflected also in the probability of switching advisors in consecutive M&A transactions.

H17: The probability that a firm switches to using another bank as its M&A advisor in consecutive M&A transactions is negatively related to the degree centrality measure of the firm's current advisor.

H18: The probability that a firm switches to using another bank as its M&A advisor in consecutive M&A transactions is negatively related to the eigenvector centrality measure of the firm's current advisor.

Hypotheses H17 and H18 mirror hypotheses H6 and H7 above. They are thus based on the assumption that better networked banks are more successful in attracting new clients or, in the case of switching, retaining their current client. I use *degree* centrality and *eigenvector* centrality as proxies for the bank's position in the network of banks. Accordingly, I hypothesize that the probability that a firm switches advisors in consecutive transactions is negatively related to 1. the *degree* centrality measure of the current bank and 2. the bank's *eigenvector* centrality measure. Both measure are calculated using data from the year prior to the current transaction.

H19: The probability that a firm switches to using another bank as its M&A advisor in consecutive M&A transactions is negatively related to the industry expertise of the firm's current advisor.

This hypothesis corresponds to hypothesis H8 in the group of advisor choice hypotheses. Accordingly, I conjecture that advisor switching probability is negatively related to the level of industry expertise of the current advisor, where industry expertise is measured as the concurrent product market share of the advisor's clients in the acquirer's three-digit SIC industry in the year of the transaction.

H20: The probability that a firm switches to using another bank as its M&A advisor in consecutive M&A transactions is negatively related to the ability of the firm's current advisor to retain clients in consecutive deals.

As stated in H9 above, I conjecture that client loyalty has a positive effect on a bank's chances to be picked as M&A advisor by a firm. In relation to advisor switching, I hypothesize that the client retaining ability (or the loyalty of its clients) of a firm's current advisor is negatively related to the probability that the firm switches advisors in consecutive M&A transactions.

H21: The probability that a firm switches to using another bank as its M&A advisor in consecutive M&A transactions is positively related to the absolute difference between the value of the current deal and the average deal size of the firm's current advisor.

In line with advisor choice hypothesis H10 above, I hypothesize that a firm is more likely to switch advisors in two consecutive M&A transactions if the second deal is considerably larger or smaller than the average deal size of the firm's current advisor. Switching probability is thus expected to be positively related to the absolute difference in current deal value and average deal value of the advisor. For example, let us assume that the value of firm A's first deal was $50m and firm A was advised in that deal by bank A whose average deal value was $100m. If firm A now made a second acquisition with a value of $300m, the probability of the firm switching to another advisor would be higher than if the value of the second deal had been $100m, since the $300m deal would be exceptionally large for bank A.

H22: The probability that a firm switches to using another bank as its M&A advisor in consecutive M&A transactions is positively related to the time passed since the firm's last transaction.

Ljungqvist and Wilhelm (2005) report that the probability of a firm switching underwriters in the firm's first SEO following its IPO increases with the amount of time that has passed from the IPO. Asker and Ljungqvist (2006) also find that the probability of switching underwriters in consecutive debt or equity increases with time. Since it is plausible to think that the same applies to M&A advisory, I hypothesize that the probability of a firm switching to using another bank as its M&A advisor increases as time passes from the firm's previous M&A transaction.

4. Data and methodology

4.1 Sample description

4.1.1 The sample of M&A transactions

The main sample used in this study consists of data on M&A transactions between 1st January 1996 and 30th September 2006. The sample is collected from the Thomson Financial SDC database[3]. When drawing the initial sample from the database, I impose the following filters on the data:

- The acquirer was domiciled in the United States.
- The acquirer was a listed company.
- The acquirer used at least one advisor.
- Transactions carried out by financial institutions (SIC 6000–6999) are excluded from the sample.
- The value of the transaction was $30 million or more.

I choose the time frame from 1996 until 2006 in order to be able to capture the entire cycle of M&A activity including the boom of 1999–2000 and the more quiet period that followed. I use data from the US because of better availability and comparability with previous studies. The limit of $30 million for transaction value is used because companies may not use advisors in smaller deals. Applying these filters yields a total of 3986 transactions, with a total transaction value of $4.183 trillion.

In addition to the sample described above, I collect a sample of M&A transactions between 1st January 1991 and 31st December 1995. Data from the five-year period preceding the actual sample are needed for calculating some of the empirical measures used in this study. Imposing the same filters as above yields me with 937 additional transactions. In total, my sample thus consists of 4922 M&A transactions announced between 1st January 1991 and 30th September 2006.

Since the focus of my study is on acquisition performed by the largest companies in their industries, I rank the companies in each three-digit SIC industry based on net sales volume

[3] I use the SDC All Mergers and Acquisitions database from which I exclude all transactions that are coded as Acquisitions of Remaining Interest, Minority Stake Purchases, Repurchases, Exchange Offers, or Self-Tenders.

each year. For this, I use annual net sales data collected from the Thomson Financial Worldscope database. Since full year sales data for 2006 was not available at the time when the sample was collected, I use the ranking from 2005 also for 2006. I match the sales rankings with the sample of transactions from SDC by using the acquirers' CUSIP numbers. Following Asker and Ljungqvist (2006), I then flag each transaction in the sample based on whether the acquirer is ranked 1 to 3, 1 to 10, 4 to 10, or 11 to 20 within its three-digit SIC industry in the year of the transaction. This allows me to perform empirical tests with subsamples that are based on the acquirer's market position in its industry. In the sample of 3986 transactions announced between 1996 and 3Q2006, 835 were made by top-3 acquirers, 542 by acquirers ranked 4 to 10, and 292 by acquirers ranked 11 to 20. In total, 1669 acquisitions out of 3986 transactions were thus made by top-20 companies in their three-digit SIC industry as ranked by net sales.

Focusing on the largest firms in each industry is warranted by the assumption that potential information spillovers mostly affect companies who have significant market shares in their product market. Interactions between large companies are more likely to have an effect on the market equilibrium when compared to companies with less market power (Asker and Ljungqvist 2006). It should be noted that I depart slightly from the industry classification approach taken by Asker and Ljungqvist (2006) in that I use three-digit SIC codes instead of four-digit SIC codes for grouping sample companies into industries. The decision to use three-digit SIC codes is based on the observation that, in many cases, using four-digit codes leads into a somewhat arbitrary classification of companies and into many industries consisting of only one company. The use of three digit SIC codes seems thus to be more consistent with economic reality.

Following Asker and Ljungqvist (2006), I also flag each transaction in my sample based on whether the acquirer was advised by one of the top-50 advisors in that year based on M&A advisory market share. I therefore calculate market shares for each advisor in the sample by dividing the combined transaction value of the advisor's deals in each year by total transaction value in that year. By sorting the banks according to their market shares I then get a ranking for each bank, which I use for identifying the deals in which the acquirer's advisor was a top-50 M&A advisor. This allows me to filter my sample of transactions based on whether the acquirer was advised by a top-50 advisor or not. In the case of multiple advisors, it is sufficient that at least one of the advisors was a top-50 advisor in the year of the

transaction. In the sample of 3986 transactions announced between 1996 and 2006, the acquirer was advised by at least one top-50 advisor in a total of 3674 cases or in 92.2 % of the transactions in the sample. Both in the advisor choice and advisor switching models, I focus on the subsample of transactions where at least one of the advisors was a top-50 advisors.

4.1.2 The sample of competing banks

In the empirical part of this thesis, I estimate the probability that an acquirer chooses a particular bank as its advisor in an M&A transaction. Therefore, I require data on both the successful bank and its competitors. I follow Ljungqvist et al (2005) and Asker and Ljungqvist (2006) in choosing the set of candidate banks from which acquirers choose their advisor. Accordingly, for an M&A transaction completed in year *t*, I treat as advisor candidates the 50 banks with the largest M&A advisory market share during that year. Market shares are calculated by dividing the combined value of deals in which a bank advised by the total value of deals in that year. In my sample, the combined market share of top-50 banks averaged 99.5% over the period 1996–2006, which suggests that focusing on the 50 largest banks gives an accurate picture of the entire M&A advisory market as represented by my sample of transactions.

The raw M&A transaction data collected from SDC has some inaccuracies with respect to the names of advisors in M&A transactions. Therefore, I correct the data manually whenever necessary in order to ensure consistency of the data. For example, some banks erroneously appear in the raw data under several different names even when there has been no change in the name of bank, and there is no other reason for the discrepancy. In these cases, I simply replace the different versions of the same bank's name with one name. I use internet news sources to verify the correct name for each bank.

4.2 Variables used in the study

4.2.1 Dependent variables

Advisor choice dummy: The dependent variable in the advisor choice probit model is a dummy variable that receives values of either zero or one. I set the variable equal to one if a particular bank in the set of 50 candidate banks is chosen as advisor in a particular M&A transaction. It should be noted that in cases where there are multiple advisors, the SDC

database treats each advisor in a transaction equally, i.e. it is not possible to tell what the actual role of each advisor was in that transaction.

Advisor switch dummy: In the advisor switch model, where I estimate the propensity of switching M&A advisors in consecutive transactions, the dependent variable is a dummy variable that receives values of either zero or one. The variable is set equal to one if a company switches its advisor in consecutive transactions. In cases where a company uses multiple advisors, I consider a company to have switched when it fails to retain every advisor used in the previous transaction in the company's next transaction. This approach follows Asker and Ljungqvist (2006).

4.2.2 Independent variables

Rival client dummy, top-3 rivals: The focus of this study is on how a bank's relationships with an acquirer's product-market rivals affect advisor choice. I thus set a dummy variable equal to one if, during the five years before company *k*'s M&A transaction in quarter *t*, candidate bank *j* advised one or more M&A transactions for one or more firms (other than *k* itself) ranked among the three largest companies (based on annual net sales) in *k*'s three-digit SIC industry. The construction of this variable follows Asker and Ljungqvist (2006). Using a five-year period implies that M&A advisory relationships are fairly "sticky", i.e. they persist for a relatively long period of time even after the transaction itself.

Rival client dummy, rivals ranked 4 to 10: Similarly as above, another dummy variable is coded to capture the candidate bank's relationships with firms ranked fourth through tenth in company *k*'s industry.

Active rival client dummy, inactive rival client dummy, top-3 rivals/rivals ranked 4 to 10 (T=3 and T=5): I code two sets of dummy variables that are intended to capture the variation in the duration of rival relationships. As explained in connection with hypothesis H2 above, it is possible that a bank could become more attractive as an advisor for other firms within an industry when it has recently lost a client in that same industry, i.e. when the rival client has switched to another bank. I follow the procedure used by Asker and Ljungqvist in calculating these variables. A rival client is considered to have switched banks, when it has not awarded any M&A business to the bank for T years (results are reported for T=3 and T=5). The bank in question is thus considered to have an active rival client for T years from its most recent

deal with the client. The first dummy variable (active rival client dummy) is set equal to one for these years. I also assume that the bank's information on the rival client decays after one year following the switch, i.e. after year 4 and 6, respectively. Accordingly, in year T+1 the second dummy variable is set equal to one, i.e. the bank is coded as having an inactive rival client. Beyond year T+1, the bank is considered to have no rival clients, i.e. both dummy variables are set equal to zero. I differentiate between top-3 rivals and those ranked between four and ten by using two sets of active and inactive rival client dummies.

Bank's share of acquirer's M&A deals, prior 4 quarters: I use a measure adapted from Ljungqvist, Marston, and Wilhelm (2006) and Asker and Ljungqvist (2006) as a proxy for the strength of existing bank-firm relationships. For each bank *j,* I calculate that bank's share of the total value of transactions carried out by company *k* as an acquirer in the four quarters preceding quarter *t*. The share is calculated as:

$$Share(j,k,t) = \frac{DealVal_{jkt}}{DealVal_{kt}} \tag{1}$$

where $DealVal_{jkt}$ is the combined deal value of company *k* 's M&A transactions in the four quarters preceding quarter *t* where bank *j* acted as the company's advisor and $DealVal_{kt}$ is the total value of company *k*'s deals in the same period. Accordingly, the strength of the relationship between bank *i* and company *k* in quarter *t*, i.e. the bank's share of the company's M&A deals over the prior 4 quarters, ranges from zero to 1.

Bank's M&A advisory market share in the prior calendar year: I use market share in the M&A advisory market in the prior calendar year as the first proxy for a bank's reputation. Each bank's annual market share is calculated by dividing the combined value of deals in which that bank has advised in the prior calendar year by the total value of deals in that year. It should be noted that due to the restrictions imposed when collecting the sample, the market shares that are calculated from the data are not indicative of investment bank market shares in the global M&A market. Rather, the market shares should be considered as indicators of each bank's position in the M&A advisory market that caters to U.S. acquirers. The market share is calculated as:

$$MKTShare(j,t) = \frac{DealVal_{jt}}{DealVal_{t}} \tag{2}$$

where $DealVal_{jt}$ is the combined deal value of all the M&A transactions where bank j acted as advisor during year t and $DealVal_t$ is the combined deal value of all M&A transactions in that year.

Megginson-Weiss reputation measure: As the second proxy for bank reputation, I use a reputation measure devised by Megginson and Weiss (1991). The calculation of the measure is presented here as in Aggarwal, Krigman, and Womack (2002) and Tonteri (2004). The variable is constructed as follows:

I get M&A advisory league tables from SDC for each year in the sample period (1996–2006) as well as for two years preceding the sample period. SDC league tables include acquisitions of at least 50% of the target, repurchases, self-tender offers, exchange offers for equity and/or securities convertible into equity, and leveraged recapitalization. The league tables exclude purchases of less than 50% of the target, any ownership interest valued at less than $1 million, and splitoffs (Rau 2000). Both advisors of the acquirer and the target are given full credit for each deal in which they provided advisory services. The league tables give me data on the deal flow of each advisor in a given year, i.e. the dollar flow of deals in which the particular bank acted as an advisor.

I correct the league tables manually whenever there are discrepancies, e.g. when a bank is listed under several different names. In such situations, I combine the league table credit from each entry into a single entry.

In order to calculate the Megginson-Weiss reputation measure, I first calculate three-year moving averages (*t-2, t-1, t*) of the deal flows for each bank j in the set of investment banks I. This moving average is denoted by x_{jt}. The Megginson-Weiss reputation measure for bank j in year t is then calculated as:

$$MW_{jt} = \frac{\ln x_{jt}}{\max_{i \in I}[\ln x_{jt}]} \times 100 \qquad (3)$$

The bank with the highest moving average in a given year thus receives a Megginson-Weiss reputation value of 100, with other banks receiving values all the way down to 0.

Degree centrality: I use a measure called *degree* centrality to proxy for a bank's position in the network of investment banks. This measure, together with *eigenvector* centrality, has its foundations in the study of social networks (See, e.g., Freeman 1979, Bonacich 1987). A social network is formed by a pattern of connections between agents or, in this case, investment banks. For the purposes of calculating this measure, I assume that a connection between two or more investment banks is made whenever the banks participate in the same M&A transaction as advisors. For bank *j* in year *t, degree* is calculated simply as the number of connections with distinct investment banks that the bank had in year *t*-1. In other words, if a bank acted as advisor together with five other distinct investment banks in the course of the prior year, the value of that bank's *degree* centrality measure in the current year would be five. By measuring the number of connections to other banks, *degree* acts as a crude proxy for the bank's position in the network of banks. Banks with more connections, i.e. better networked banks, are in a more central position in the network, which could mean that they are more influential and have good contacts to other banks. From the point of view of clients, this could provide a benefit when compared to banks that are not as well networked.

Eigenvector centrality: When compared to degree centrality, this measure is a more advanced method of estimating a bank's position in the network of investment banks that compete for the same clients. Where *degree* gives a simple count of the connections a bank has, *eigenvector* centrality tries to take into account that it is not irrelevant who you are connected to (Bonacich 1987). Connections to banks that are themselves influential will give a bank more influence than connections to less influential banks. The measure is calculated as follows.

Let A_{ij} be the adjacency matrix of the network of banks. Hence $A_{ij} = 1$ if the *i*th node is connected to the *j*th node, and $A_{ij} = 0$ otherwise. Let x_i denote the *eigenvector* centrality score of the *i*th node. For the *i*th node, let the centrality score be proportional to the sum of the scores of all nodes which are connected to it:

$$x_i = \frac{1}{\lambda} \sum_{j \in M(i)}^{N} x_j \tag{4}$$

where $M(i)$ is the set of nodes that are connected to the *i*th node, N is the total number of nodes and λ is a constant. The vector of centrality scores **x** is an eigenvector of the adjacency matrix with eigenvalue λ (See Bonacich 1987 for details of the calculation). As with *degree*,

the *eigenvector* centrality measure is calculated for year t with data from the prior year, i.e. year t-1.

When defined in the way presented above, each bank is given an *eigenvector* centrality score that depends both on the number and the quality of connections. A bank with a small number of high-quality contacts may thus outrank a bank with a larger number of mediocre contacts.[4]

Concurrent product market share of bank's clients in acquirer's industry: As in Asker and Ljungqvist (2006), one of the empirical challenges in this study is how to separate the effects of information spillover and the bank's industry expertise that it has gained from dealing with an acquirer's rivals. I therefore proxy a bank's industry expertise by the combined concurrent product market share of its clients in the acquirer's three-digit SIC industry. Product market shares are calculated using the same Worldscope net sales data that is used for calculating the sales-based rankings for each acquirer. I calculate the combined market share of a bank's clients by first calculating annual market shares for all companies in the industry, then identifying the bank's clients, and finally adding together the market shares of the clients in the year of the transaction.

Client loyalty index: Following Asker and Ljungqvist (2006), I also construct a "loyalty index" that measures how often a bank retains its clients in consecutive transactions. The measure is intended to control for unobservable factors such as execution capability etc. that affect the choice of advisor. The index is constructed as follows: Let I_{ck} and I_{rk} = 1 if bank j managed company k's penultimate and most recent M&A deals, respectively, in the five years to quarter t, and 0 otherwise. Then j's loyalty index in quarter t is calculated as:

$$loyalty\,index = \frac{\sum_k I_{ck} I_{rk}}{\sum_k I_{ck}} \tag{5}$$

The loyalty index is thus calculated as the number of retained clients over the total number of clients and it gets values between 0 and 1.

Absolute size difference of current deal and average deal of bank: I control for the size of the transaction by comparing the size of the deal at hand to the bank's average deal size in the

[4] As an interesting side note, the PageRank algorithm used in Google's internet search engine is based on calculating eigenvector centrality scores for web pages.

prior calendar year. This is intended to capture the fact that a bank is unlikely to advise on a deal that is unusually large or small compared to the bank's average deals. As suggested in connection with the explanation of hypothesis H7 above, this could be due to capacity reasons or the bank's unwillingness to advise in deals that are too small considering the bank's "deal size profile". For a deal in year *t*, the measure is calculated by subtracting the average size of the advisor's deals in year *t-1* from the value of the current deal and taking the absolute value of the result. I use a logarithmic transformation of the size difference in order to avoid skewness of the measure. The measure is thus calculated as

$$\ln\left[abs(current\ deal\ size - avg.deal\ size\ of\ bank)\right] \tag{6}$$

In cases, where the bank has not advised in any deals in year *t-1*, I measure the difference in the size of the current deal and the bank's average deal size over the entire sample period from 1996 to 2006.

Herfindahl index of concentration of acquirer's industry: I include a variable that controls for the level of concentration in the acquirer's product market industry. For this purpose, I calculate a Herfindahl measure of concentration for the three-digit SIC industries of each acquirer. The measure is calculated using annual net sales data from Worldscope. The measure is calculated for each industry as:

$$H = \sum_{i=1}^{n} (s_i^2) \tag{7}$$

where s_i is the market share of firm *I* in the three-digit SIC industry, and n is the number of firms in that industry. This variable is included in the probit regression models as an interaction term crossing the rival client dummy that indicates whether the advising bank has clients among the top-3 firms in the acquirer's industry.

Multiple concurrent clients in same industry dummy: I include a dummy control variable that accounts for the possibility that capacity constraints may be present, which could prevent investment banks from taking on multiple clients from the same industry within a short period of time. This variable is also used as an interaction term crossing the rival client dummy. I set this dummy variable equal to one if the bank has one or more rival clients and the bank is advising one or more such clients in the current quarter.

Merger of current advisor dummies 1 and 2: Following Asker and Ljungqvist (2006), I use dummy variables to investigate the effect that the merger of a firm's relationship bank has on the probability of advisor switching in consecutive transactions. These variables proxy for the increased risk of information spillovers when a firm's relationship bank merges with another bank who has clients that are product-market rivals of the firm. The first dummy variable is set equal to one if the firm's advisor bank has merged with another bank since the firm's last M&A transaction, but the bank's merger partner has no clients among the top-10 firms in the acquirer's industry. The second dummy variable is set equal to one if the firm's advisor has merged with another bank and the merger partner has clients that are top-10 firms in the acquirer's industry. I use the dummy variables to perform a differences-in-differences test with two control groups, as explained in detail in chapter 4.3.2.

Time since previous transaction: I control for the time that has passed since the acquirer's previous transaction when estimating advisor switching propensity in consecutive transactions. The measure is calculated as:

$$\ln(1 + time\ in\ years\ since\ previous\ transaction) \tag{8}$$

I use a logarithmic transformation to avoid skewness of the measure. I use the amount of time between transactions as a proxy for the effects that the passage of time has on bank-firm relationships. It is plausible to think that as time passes since the previous engagement, relationships between the firm and its advisor bank "cool off". It follows from this that an important part of the work performed by investment banks consists of staying in touch with former clients and providing them with ideas that might lead to new mandates for the banks.

Table 1 provides a summary of all the variables used in this study.

Table 1. Variables used in the study
This table presents the variables used in the probit regression models that are used to estimate (1) the probability that a particular bank is chosen as advisor in a particular transaction, and (2) the probability that a firm switches advisors in consecutive M&A transactions. The table provides the name of the variable, the number of the related hypothesis in chapter 3., the effect that the variable is proxying for, and the expected sign of the variable in the advisor choice and advisor switching models. Detailed definitions of the variables are given in chapter 4.2.2.

Hypothesis	Variable	Proxying for	Expected sign	
Variables used only in the advisor choice model			*Advisor choice*	*Advisor switching*
H1	Rival client dummy, top-3 rivals	Information spillovers	Negative	
H1	Rival client dummy, rivals ranked 4 to 10	Information spillovers	Negative	
H2	Active rival client dummy, top-3 rivals	Information spillovers	Negative	
H2	Inactive rival client dummy, top-3 rivals	Information spillovers	Positive	
H2	Active rival client dummy, rivals ranked 4 to 10	Information spillovers	Negative	
H2	Inactive rival client dummy, rivals ranked 4 to 10	Information spillovers	Positive	
H11	Herfindahl index of concentration of acq's industry	Industry concentration	Negative	Positive
H12	Multiple concurrent clients in industry dummy	Capacity constraints	Negative	Positive
Variables used in both models (advisor choice and advisor switching)				
H3, H14	Bank's share of acquirer's deals, prior 4 quarters	Strength of bank-firm relationship	Positive	Negative
H4, H15	Bank's M&A advisory market share, prior calendar year	Bank reputation	Positive	Negative
H5, H16	Megginson-Weiss measure	Bank reputation	Positive	Negative
H6, H17	*Degree* centrality	Bank's position in network of banks	Positive	Negative
H7, H18	*Eigenvector* centrality	Bank's position in network of banks	Positive	Negative
H8, H19	Concurrent product-market share of bank's clients in acq's industry	Industry expertise	Positive	Negative
H9, H20	Client loyalty index	Client loyalty	Positive	Negative
H10, H21	Absolute difference in size of current deal and avg. deal of bank	Capacity constraints / "Deal size profile"	Negative	Positive
Variables used only in the advisor switching model				
H13	Merger of current advisor dummy 1 (no rival clients)	Information spillovers		Zero?
H13	Merger of current advisor dummy 2 (top-10 rival clients)	Information spillovers		Positive
H22	Log time since previous transaction	Effect of time on bank-firm relationships		Positive

4.3 Methodology

4.3.1 Advisor choice model

I study the effect of information spillovers on advisor choice by estimating a bank's probability of being selected as advisor by an acquirer in a particular deal. In each transaction, I treat as advisor candidates the 50 banks with the largest M&A advisory market share during that year. The unit of observation in the model is thus each potential bank-firm relationship. In other words, for each M&A transaction in my sample, there are 50 advisor candidates with certain characteristics. A candidate is deemed successful if the bank eventually acted as the

sole advisor or as one of multiple advisors in that particular transaction. If this is the case, the corresponding dummy variable is set equal to one for that bank.

I examine the determinants of advisor choice by estimating a standard multivariate probit specification. The model is presented here as in Asker and Ljungqvist (2006). Details of the probit method are presented as in Dougherty (2002).

I model each company k as having the following utility associated with choosing each of the 50 competing candidate banks j as its advisor in the current transaction at time t:

$$u_{kjt} = \alpha R_{jt} + \beta x_{kjt} + \varepsilon_{kjt} \tag{9}$$

where $R_{jt} = 1$ if bank j has a rival client in company k's three-digit SIC industry, x_{kjt} are other determinants of advisor choice, and ε_{kjt} is an error term that is assumed to have a normal distribution. Faced with these utilities over choices, each company k decides whether choosing a particular bank as its M&A advisor generates more utility than not. The probability of a particular bank being chosen as advisor is thus dependent on u_{kjt}, a linear function that determines the utility for a company from choosing an advisor.

For the purposes of this presentation, I denote u_{kjt} by Z_i, the determinants of advisor choice R_{jt} and x_{kjt} by X_i, and the regression coefficients by β_i. In practice, u_{kjt} is unobservable and I thus observe a dummy variable Y that is set equal to one when a particular bank is chosen as advisor. The probability of the bank being chosen can thus be written as the probability of Y being 1, conditioned by X_i, i.e., $p_i = E(Y = 1 | X_i)$. I estimate that probability by fitting a probit model, where the probability is given by the standardized cumulative normal distribution, $F(Z)$:

$$p_i = F(Z_i) \tag{10}$$

The marginal effect of X_i, $\partial p / \partial X_i$ can be calculated as

$$\frac{\partial p}{\partial X_i} = \frac{dp}{dZ}\frac{\partial Z}{\partial X_i} = f(Z)\beta_i \tag{11}$$

where $f(Z)$ is the standardized normal distribution:

$$f(Z) = \frac{1}{\sqrt{2\pi}} e^{-\frac{1}{2}z^2} \tag{12}$$

Accordingly, the marginal effect of X_i on p can be presented as

$$\frac{\partial p}{\partial X_i} = f(Z)\beta_i = \left(\frac{1}{\sqrt{2\pi}} e^{-\frac{1}{2}z^2} \right) \beta_i \tag{13}$$

Following the procedure presented in Dougherty (2002), I evaluate the marginal effects of each explanatory variable by using the value of Z given by the sample means of the explanatory variables.

4.3.2 Advisor switching model

As Asker and Ljungqvist (2006) point out, a potential concern with the advisor choice model presented above is that the probit coefficients might identify the impact of information spillovers on advisor choice imperfectly because of a possible endogeneity problem created by the industry expertise, skill in executing the transaction, or some other quality variables related to the advisor candidates. Furthermore, if we consider that the candidate banks themselves might actually be choosing who they want to do business with, this could also reduce the validity of the results obtained from the probit advisor choice model.[5] Asker and Ljungqvist (2006) propose countering these concerns by looking for exogenous shocks to the bank-firm matching, such that any disutility from sharing advisors is increased for some firms, while holding all else constant. This would make it possible to isolate any direct effect that sharing M&A advisors might have on how companies choose their M&A advisors. Following Asker and Ljungqvist (2006) I use bank mergers as the kind of exogenous shocks described above, in connection with a probit model where I estimate the probability that a company switches advisors in consecutive M&A transactions.

The intuition behind this empirical strategy is as follows. Let us assume that there are two banks, B1 and B2, and their respective client firms F1 and F2, who are product-market competitors, i.e. they operate in the same three-digit SIC industry. B1 and B2 have provided

[5] See Fernando, Gatchev, and Spindt (2005) for a discussion of two-sided matching in the context of underwriter choice.

advisory services to their respective client firms in the last M&A transactions carried out by the firms. At some point B1 and B2 merge. If the possibility of having to share M&A advisors with each other generates significant disutility, the merger should lead to one of the two client firms switching banks. The probability of a firm ending its bank relationship should, therefore, increase after a merger involving a bank with a relationship with one of the firm's product-market rivals. Asker and Ljungqvist (2006) suggest that this test can be used to distinguish the effect of information spillovers from industry expertise effects.

The test is implemented formally as a differences-in-differences test where bank merger activity is used as the source of exogenous variation. A differences-in-differences (DID) test uses two different degrees of variation in order to difference away factors that could be correlated individually with each degree of variation (see, e.g., Gruber and Poterba 1994, Athey and Imbens 2002). DID tests are commonly used to examine the effect of a treatment or, in economic studies, of a policy intervention that affects a certain group within a population. The aim of using a DID test is to separate the effect of the treatment on a certain outcome from other sources of variation, e.g., an underlying time trend in the outcome that is being examined. DID estimation thus consists of identifying the effect of a specific treatment or intervention on an outcome. The difference in outcomes after and before the intervention for groups affected by the intervention is then compared to the same difference for unaffected groups. The approach is not only simple, but also has the potential to avoid some of the endogeneity problems that may arise when comparing heterogeneous individuals.[6]

In this test, I compare the switching behavior of a treatment group to two control groups. The treatment group comprises companies whose advisor bank has merged with their product-market rival's advisor bank since the companies carried out their last M&A transaction. The first control group comprises companies whose advisor has merged with a bank that has no relationships with the largest rivals of the company, while the second control group consists of companies whose advisor has not undergone a merger recently.

I perform the test by estimating the probability that a firm switches advisors in consecutive M&A transactions. A switch is defined to have taken place when a firm hires as advisor any other bank than the advisor used in the firm's most recent M&A transaction, or if that bank

[6] See Bertrand et al. (2004) for a discussion of the limitations of the DID method. To summarize, Bertrand et al. (2004) point out, i.a., that the interventions themselves may be endogenous which limits the effectiveness of the method.

has been acquired since, its successor. In the case of multiple advisors, a firm is coded to have switched advisors when it fails to retain every advisor from the previous transaction. The approach taken in coding switches follows Asker and Ljungqvist (2006).

The determinants of the probability of advisor switching are estimated by using a probit model similar to that used in the advisor choice model (see expressions 9–12 above). In the switching model, the dependent variable p_i is the probability that firm i switches its advisor in back-to-back M&A transactions, which can be written as the probability of Y being 1 conditioned by X_i, i.e., $p_i = E(Y = 1 | X_i)$ where X_i is the vector of determinants of advisor switching probability. The base category in the specification is the second control group (advisor has not merged since last transaction), which means that I test whether firms in the treatment group and in the first control group are more likely to switch advisors than firms in the second control group.

It should be noted that the sample of transactions used with the advisor switching model is a subset of sample used with the advisor choice probit model. This is due to the fact that measuring the probability of switching is not relevant with one-time acquirers and they are thus excluded when estimating the advisor switching model.

In order to be able to calculate the bank merger dummies required for the switching model, I need to identify mergers between banks that acted as advisors for acquirers in the sample of transactions. For this purpose, I extract a list of all mergers involving financial companies (SIC 6000-6999) between 1996 and 3Q2006 from the Thomson Financial SDC database. I then identify all mergers where both merger partners had also acted as advisors in one or more of the transactions in my sample of M&A transactions. A total of 24 bank mergers that took place between 1996 and 3Q2006 fill these conditions.

5. Results

5.1 Descriptive statistics and industry characteristics

Figure 1. The Sample of Mergers and Acquisitions 1996–3Q2006
The figure shows the deal value and number of mergers and acquisitions announced in the sample period running from 1st January 1996 up until 30th September 2006. The sample of transactions includes transactions with a deal value in excess of $30 million made by U.S. acquirers excluding companies with a SIC code in the range of 6000–6999 where at least one financial advisor was used by the acquirer. The figure is thus not indicative of total M&A volume during the period.

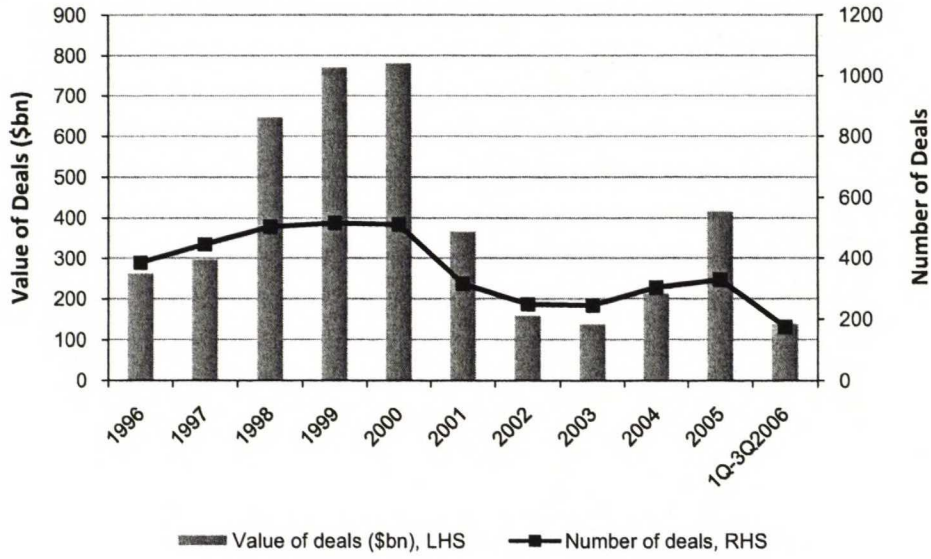

Figure 1 shows the annual number and deal value of M&A transactions in the sample period that runs from 1st January up until 30th September 2006. It should be noted that the figure is not indicative of total M&A volume in that period since the figure only includes transactions that meet my sample criteria. Accordingly, the figure only shows the number and volume of transactions with a deal value in excess of $30 million carried out by U.S. acquirers, excluding financial companies (SIC 6000–6999), where the acquirer employed at least one financial advisor, as reported in the Thomson Financial SDC database. Due to the selected sample period, the last vertical bar on the horizontal axis shows the volume of deals in 2006 only up until the end of 3Q/2006 as opposed to other years where volume for the whole year is shown.

The figure clearly shows the sharp increase in deal volume in 1998–2000, which was mainly due to a large number of deals performed within the TMT sector. The graph also shows that during that period, the increase in deal volume outpaced the rise in the number of deals, which suggests that the average value of individual deals increased strongly. This is can be

attributed, at least to some degree, to the overly enthusiastic equity valuation levels that were characteristic to some industries in that particular time period. M&A volume fell sharply in the concurrent bear market that lasted until 2003, but increased again in 2004–2005.

Table 2. The Sample of M&A Transactions
The sample of M&A transactions is extracted from the Thomson Financial SDC database. The sample includes M&A transactions where (1) the acquirer was a listed U.S. company, (2) the acquirer employed at least one advisor, (3) the value of the transaction was $30 million or more, and (4) at least one of the advisors was a top-50 investment bank in the year of the transaction as ranked by market share from total deal flow. In addition, acquisitions performed by financial institutions (SIC 6000-6999) are excluded from the sample. In the upper half of the table, the sample is grouped in the table according to the acquirer's market position in its three-digit SIC industry as ranked by annual net sales. In the lower half of the table, the sample is split into two time periods where the first period runs from 1/1/1996 to 31/12/2000 and the second period runs from 1/1/2001 to 30/9/2006. Furthermore, the first four columns show statistics on the advisor choice sample, while the last forum columns show statistics on the advisor switching sample, which is a subsample of the advisor choice sample.

	Advisor Choice Sample				Advisor Switching Sample			
	Nr. of deals	% of all deals	Avg. deal size, ($m)	Median deal size, ($m)	Nr. of deals	% of all deals	Avg. deal size, ($m)	Median deal size, ($m)
Acquirer market position								
Top-3 acquirers	801	21.8	1,591.0	428.3	442	27.6	1,576.8	430.6
Top-4 to 10 acquirers	507	13.8	1,124.1	272.8	252	15.7	1,475.5	293.7
Top-11 to 20 acquirers	274	7.5	1,031.2	230.5	113	7.1	1,196.6	260.0
Top-20 acquirers in total	1,582	43.1	1,344.4	328.3	807	50.4	1,492.0	352.1
Other	2,092	56.9	969.4	195.0	795	49.6	932.7	205.1
All deals	3,674	100.0	1,130.9	247.7	1,602	100.0	1,214.4	277.6
Time period								
1996 to 2000	2,158	58.7	1,267.3	255.0	1,114	69.5	1,337.6	293.9
2001 to Q3/2006	1,516	41.3	936.7	235.0	488	30.5	933.2	258.5
All deals	3,674	100.0	1,130.9	247.7	1,602	100.0	1,214.4	277.6

Table 2 shows the composition of the samples used in the econometric tests of this study. Both the advisor choice sample and advisor switching sample are subsamples of the raw sample collected from SDC since they include only transactions where the advisor was one of the top-50 M&A advisors in the year of the transaction. It should also be noted that the econometric tests performed focus on the part of the sample where the acquirer was within the 20 leading companies in its three-digit SIC industry. Table 2 shows the two samples grouped according to the market position of the acquirer and according to the year when the acquisition was announced. For each group, the table shows the number of deals and proportion of all deals as a percentage, together with average and median deal size in millions of dollars.

The table shows that in the advisor choice sample, approximately a fifth of all deals was carried out by acquirers that were top-3 companies in their industry. In the advisor switching sample more than a quarter of the acquirers were top-3 companies. The difference is most

likely explained by the fact that one-time acquirers are excluded from the advisor switching sample, since it is plausible to think that smaller companies are overrepresented in the group of one-time acquirers. This can also be seen in the proportion of other acquirers, i.e. the proportion of companies that are not among the top-20 in their industries. This proportion is considerably smaller in the advisor switching sample than in the advisor choice sample.

Looking at average and median deal sizes in Table 2, it can be seen that while median deal size is around $250 million in both samples, average deal sizes are in excess of $1 billion. This implies that the sample includes a number of extremely large deals, which inflates the average deal size in the samples. In fact, the largest deal in sample period was the merger between AOL and Time Warner in 2000 that had a deal value of approximately $165 billion. The table also shows that the market position of the acquirer is, perhaps self-evidently, positively related to the size of M&A transactions performed by the acquirer. Thus, the median deal size of top-3 acquirers, $430 million, is considerably larger when compared to other groups of acquirers. To put it simply, larger companies seem to make larger deals. Comparing deal sizes in the two time periods into which the samples are split in Table 2, it can be seen that average and median sizes of deals made in the latter period of 2001–2006 are somewhat smaller than in 1996–2000. This is most likely due to the period of high equity valuations around 1999–2000 that contributed to inflating the size of M&A transactions through the use of common stock as tender in M&A deals.

Figure 2. M&A Advisory Share of Top 50 Banks
The graphs show, from bottom to top, the combined M&A advisory market shares of the four, 10, 20, 30, 40, and 50 largest M&A advisors each year, the first three of which are labeled C4, C10, and C20. The market shares are calculated for advisors of acquiring firms in M&A transactions, i.e. services provided for target companies are not included in the market share calculation.

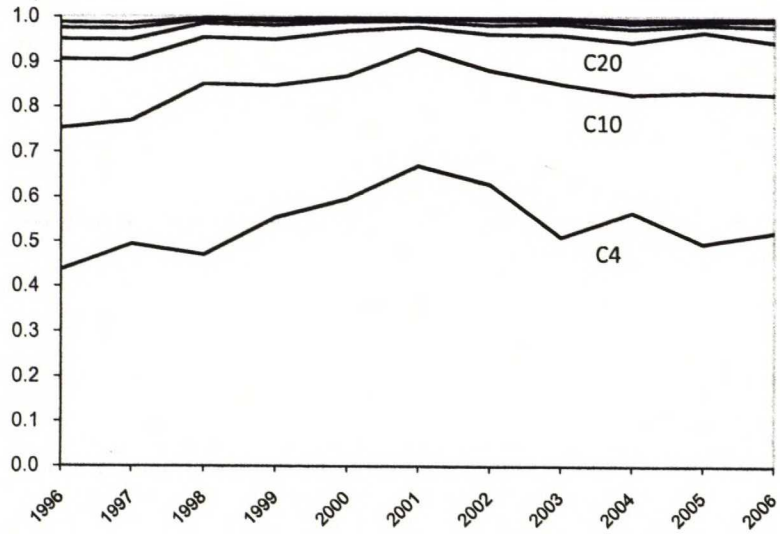

Figure 2 provides an overview of how M&A advisory business was divided among banks providing their services to acquiring firms in the sample period. The graphs show the combined market shares of the four, 10, 20, 40, and 50 largest M&A advisors each year based on shares of total deal value in that year. In the case of deals where the acquirer employed multiple advisors, equal credit is given to all advisors who were listed as the acquirer's advisors in the Thomson Financial SDC database. The market shares do not include the value of advisory services provided to target companies, i.e. the graphs depict only how the market of providing advice to acquirers is divided among industry players.

It can be seen from the graphs that the industry of providing M&A advisory services is somewhat concentrated. In the sample period, the four largest advisors alone accounted for between 45 and 70 percent of the total. The mean of the C4 measure, i.e. the combined market share of the top-4 advisors, was 54%, which is close to the 51% and 53% mean C4 figures reported by Asker and Ljungqvist (2006) in connection with equity and debt underwriting, respectively.

Looking at the fluctuations in the concentration measures over the period, it can be seen that market concentration increased from 1996 until 2001 after which it has steadily declined. It is difficult to find one single reason that would explain the ongoing downtrend in concentration, but the entry of commercial banks into M&A advisory could be offered as a possible

explanation. Judging by the developments in league table rankings during the past five or six years, Citigroup and Deutsche Bank appear to have been particularly successful in penetrating the M&A advisory market in the U.S. In addition, it seems that the playing field has become somewhat more level, i.e. differences between top-10 banks have decreased. This could be partly due to the steady increase in overall deal volume that has taken place from 2003 onwards. It is conceivable that as deal flow increases, deals are divided among a larger group of banks.

It is possible to benchmark the concentration measures displayed in Figure 2 against industry concentration ratios in other industries as reported by the U.S. Bureau of Census (2002). With a C4 of 90.8% in 2002, the beer brewing industry, for example, is located at the higher end of the scale. Automobile manufacturing can be named as an example of an industry with slightly lower concentration – it had a C4 of 75.5%. The furniture manufacturing industry, on the other hand, can be characterized as unconcentrated since it had a C4 of only 11.0%. If one compares the said C4 figures against those in Figure 2, it can be constituted that the concentration level of the M&A advisory business lies somewhere in the middle. The industry is thus moderately concentrated, but not to such an extent as the beer industry or the automobile manufacturing industry who are almost completely controlled by a small number of leading firms.

When interpreting the concentration measures shown above, it should be noted that market shares are calculated based on deal value and not on the number of deals. It is a well-known fact that deals above a certain size are almost exclusively handled by a handful of "bulge-bracket" banks, with the remainder of mandates in large deals going to a number of high-profile boutique investment banks. This is reflected in the C4 and C10 measures, since the largest deals tend to accumulate to the leading banks. It is likely that the concentration figures would look at least somewhat different if they were calculated based on the number of deals completed by each advisor instead of deal value.

Figure 3. Exclusivity of Bank-firm M&A Advisory Relationships
The graphs show the fraction of time that a given bank with at least one M&A advisory client among the three, five, ten, or 20 largest firms (by Worldscope net sales) in a given three-digit SIC code in a given quarter has exactly one such relationship client. A bank *i* is coded as having a client in quarter *t* in industry *j*, if it has advised an acquirer in that industry in the five years ending in quarter *t*-1.

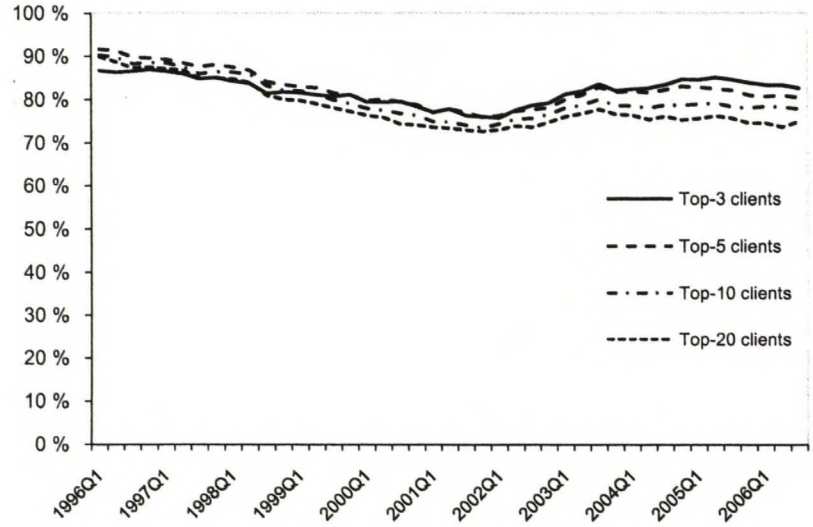

Figure 3 shows how the exclusivity of bank-firm M&A advisory relationships has developed over time in the sample period between 1996 and the third quarter of 2006. The graphs show the percentage of single-client banks, i.e. the fraction of banks who have exactly one client within a three-digit SIC industry, given that they have at least one client in that industry, among the top-3, top-5, top-10, or top-20 firms as measured by sales in the relevant year. A bank *i* is coded as having a client in industry *j* in quarter *t*, if it has advised an acquiring company among the relevant group of top companies in that industry over the five years ending in quarter *t*-1. I use data onwards from January 1st, 1991 in order to be able to calculate five-year client relationships for my sample period starting from 1996. An industry is defined as comprising all companies that share the same three-digit SIC code, i.e. the first three digits of a company's SIC code that is listed as its primary SIC code in the Thomson Financial database. Bank *i* is coded as a single-client bank in quarter *t* if it has exactly one client in industry *j* during the five-year period, and as a multi-client bank if the bank has more than one client in that industry in the said five-year period. After that, I calculate the fraction of single-client banks from the combined number of single-client and multi-client banks across all industries for each quarter *t*. The resulting fractions are displayed as percentages in Figure 3.

The major trend visible in Figure 3 is that the exclusivity of client relationships appears to have decreased slightly from 1996 to 2006. However, the decrease has not been entirely linear

in fashion. The exclusivity of M&A advisory relationships decreased steadily from 1996 until 2002, but the trend appears to have been reversed after that, which can be seen as a rise in the graph from 2002 until 2004. In the last couple of years in the sample period the fraction of single-client banks appears to have remained at a fairly steady level.

It should also be noted that the decrease in client exclusivity is more pronounced with banks that have also other than top-3 firms as their clients. For the group of clients that are within the leading three companies in their industry (as measured by sales), the fraction of single-client banks has remained at the 85 % level from 1996 until 2006, although not steadily throughout the entire period. This can be contrasted with the decline in exclusivity that appears to have taken place with banks tending to top-20 clients. For this group, the fraction of single-client banks has declined from the 90-percent level to below 80 %. Intuitively, it seems plausible that client exclusivity has remained as the norm with top-3 clients. Investment banks compete fiercely for mandates from the leading companies in each industry, and it is thus unlikely that one bank would be secure two or three top-3 clients within an industry.

Figure 4. Concentration of Bank-Firm M&A Advisory Relationships
The graphs show the concentration of bank-firm relationships as measured by a Herfindahl index. The index is calculated from market shares measured over the prior one, two, or three years. The market shares are calculated by first calculating the total value of deals performed by a firm over the given time period and by then calculating the share of each bank as a fraction of that total. The Herfindahl index shown in the graph is an arithmetic average of individual indices for each firm in each quarter.

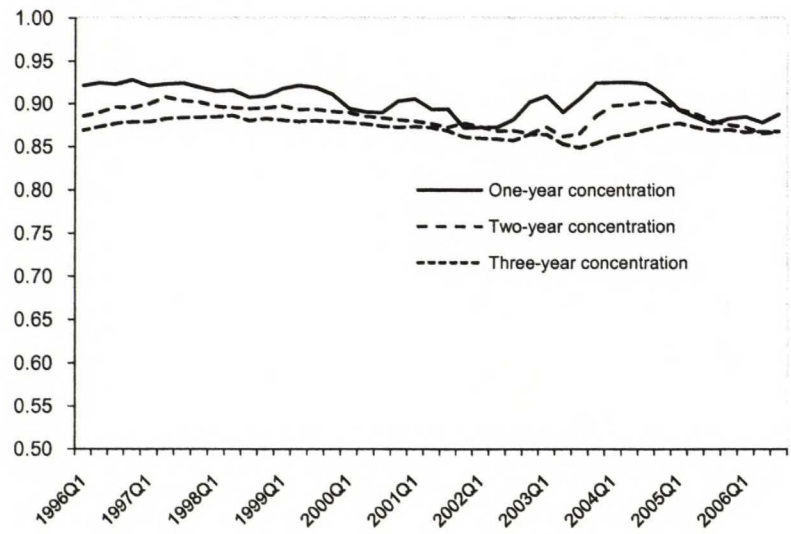

Figure 4 describes the development bank-firm relationships in the sample period from a slightly different perspective. The graphs characterize the extent to which acquirers tend to concentrate their M&A advisory business with a single investment bank. The graphs show the development of an average of Herfindahl concentration indices that are calculated from the market shares of investment banks with each individual firm over one-, two-, and three-year windows. A Herfindahl index (or Herfindahl-Hirschman index[7]) is calculated as the sum of the squared market shares within a certain market, i.e. by using the formula

$$H = \sum_{i=1}^{n} (s_i^2) \tag{14}$$

where s_i is the market share of firm I in the market, and n is the number of firms. A Herfindahl index of one would thus indicate total concentration or, in this case, that a firm concentrated all of its M&A advisory business with one bank.

I calculate the Herfindahl indices by first calculating the total value of deals for each acquiring firm in a one-, two-, or three-year window and then examining how this amount is divided among the banks who acted as the firm's advisors. When a firm uses more than one advisor in connection with a single transaction, credit for that transaction is given evenly to all advisors. I calculate the market share of each bank by dividing the bank's share of a firm's deals in the given time window by the total value of deals the firm has made during that period. For example, when calculating the Herfindahl Index for firm i in quarter t with a one-year window, all transactions in quarters t-3, t-2, t-1, and t are taken into account. I get a Herfindahl index for each firm in each quarter by calculating the sum of the squared market shares. Finally, I calculate the arithmetic average of all Herfindahl indices in each quarter, which leaves me with an average quarterly Herfindahl index for all companies in the sample, as shown in Figure 4.

Looking at the graph, it can be noted, first of all, that the overall level of concentration is very high. Irrespective of the time window used in calculating the Herfindahl index, concentration seems to have hovered in the range between 0.85 and 0.95 over the entire sample period. This would seem to imply that a majority of firms concentrate their M&A advisory business with

[7] There is some confusion as to who originally invented the widely-used measure. See, e.g., Hirschman (1964) who notes that he first used the measure in 1945 whereas Herfindahl proposed the index in a paper published in 1950.

one investment bank. It should be noted though, that the methodology used in measuring the Herfindahl index might overestimate the level of concentration since it does not account for the possible error caused by one-time acquirers, who naturally have a Herfindahl index of 1.

Although the overall level of concentration seems to have stayed fairly high throughout the period presented in the graph, it seems that the level of concentration decreased somewhat from 1996 up until 2002. The trend is similar to what can be seen with regard to client exclusivity in Figure 3. One possible explanation for this trend could be the entrance of commercial banks into the underwriting and M&A advisory market, which intensified around that time. It is plausible that with commercial banks entering the M&A advisory market, some firms might have been enticed to expand the group of banks from which they choose their M&A advisor. This could have been the case especially with large companies, who perform acquisitions more frequently.

In order to get a more accurate picture of whether large-scale acquirers have indeed become more "diversified" with respect to their selection of M&A advisor, I modify the concentration measure illustrated in Figure 4 by taking into account the size of deals in calculating the average Herfindahl index in each quarter. Following Asker and Ljungqvist (2006) I thus calculate a value-weighted average of the Herfindahl indices calculated for each acquirer in each quarter. I weight the indices by the total value of deals for each firm over the relevant time window. The resulting graphs are presented in Figure 5.

Figure 5. Value-weighted Concentration of Bank-Firm M&A Advisory Relationships
The graphs show the concentration of bank-firm relationships as measured by a Herfindahl index. The index is calculated from market shares measured over the prior one, two, or three years. The market shares are calculated by first calculating the total value of deals performed by a firm over the given time period and by then calculating the share of each bank as a fraction of that total. A value-weighted average of the Herfindahl indices is calculated for each quarter by weighting the individual figures with the total value of deals for each firm over the relevant time window.

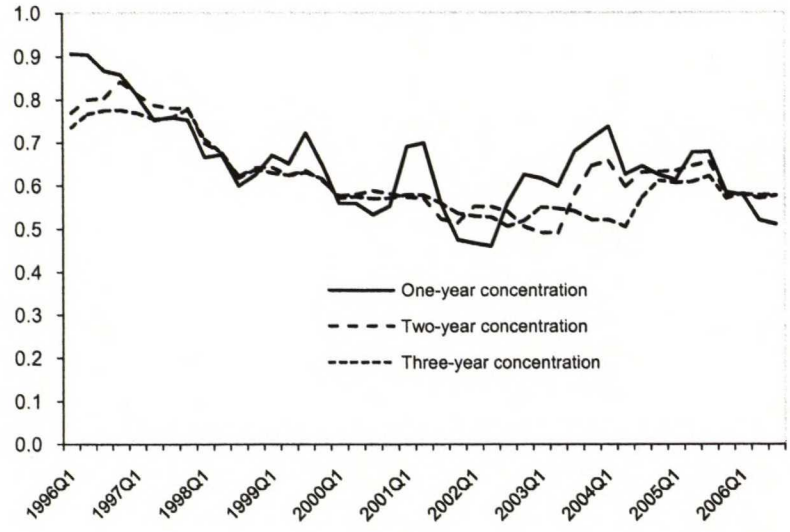

Figure 5 presents a somewhat different picture of the development of concentration in bank-firm relationships in connection with M&A advisory when compared to Figure 4 When the value of deals is taken into account, the downward trend in concentration is more marked and the overall level of concentration is lower. It can be seen from the graphs that average concentration has fallen from around 0.8 in 1996 to 0.6 in 2006. This implies that during the sample period, larger acquirers have moved from having only one relationship bank whose advisory services they employ in M&A transactions to having multiple relationship banks. This observation is in line with Asker and Ljungqvist (2006) who report a similar trend in relation to equity and debt underwriting. Although noticeable, the differences in concentration between the three different time windows are not as clear as the downtrend in the overall level of concentration.

To summarize, Figures 2 through 5 suggest that some changes have taken place in the nature of bank-firm relationships in the field of M&A advisory. On the one hand, it seems that investment banks more frequently provide their services to more than one of the largest firms in an industry, i.e. the fraction of banks with only a single client among the top firms has decreased. It has to be noted, though, that client exclusivity is still at a high level, i.e. it is still quite rare for investment banks to provide their M&A advisory services to multiple large

companies within an industry. On the other hand, especially firms performing larger transactions are not limiting themselves as often to using a single relationship bank as their advisor in all of their M&A deals. In connection with debt and equity underwriting, Asker and Ljungqvist (2006) suggest that this change in the behavior of firms could be a response to commercial banks entering the market. It is plausible that this explanation could hold also in the case of M&A advisory. Not only does the sheer size of commercial banks facilitate executing larger deals, but also the wide range of services that commercial banks provide in addition to pure M&A advisory makes them more attractive for large-scale acquirers who are more likely to require such services than smaller, one-time acquirers.

5.2 Advisor choice

Table 3 presents descriptive statistics for the sample of transactions used in the advisor choice probit model, i.e. transactions performed by acquirers that are top-20 companies in their industry. The statistics are presented in two columns broken down by whether the bank was chosen as advisor in the deal in question or not. The last column presents the t-statistics for differences in means or fractions for the two groups. The table shows, first of all, that the average winning candidate bank had acted as advisor in 8.1% of the acquirer's M&A transactions in the prior 4 quarters leading up to the current deal. For losing candidates, the share is significantly lower – only 0.2%. This seems to highlight the importance of prior relationships between investment banks and acquirers in the process of awarding advisory mandates. The result is in line with the findings of Asker and Ljungqvist (2006) who observed similar results in connection with underwriting.

The following two lines in Table 3 show that a larger fraction of winning banks had relationships with either the issuer's top-3 rivals or rivals ranked 4 to 10 preceding the M&A transaction in question. This result would suggest that acquirers actually prefer sharing advisors with rival firms. However, as noted before, using the same investment bank as a rival firm may also provide a benefit in the form of acquired industry expertise. In a univariate setting, the effects of potential information spillover and industry expertise cannot be distinguished.

Table 3 also shows that the advisory market share of winning candidate banks in the year prior to the deal was higher than the respective share of losing banks. This is in line with the hypothesis that firms are more likely to choose banks with better reputation as their advisors

than lower-reputation banks when market share is seen as a proxy for bank reputation. The reputation hypothesis is also supported by the finding that winning candidate banks appear to have statistically significantly higher Megginson-Weiss reputation measures than losing candidates. The result is in line with previous literature that has noted the importance of bank reputation in M&A advisor choice, e.g. Kale et al. (1998), Rau (2000), Saunders and Srinivasan (2001), Rau and Rodgers (2002) and Kale et al. (2003).

Table 3 shows, furthermore, that better networked banks seem to have an advantage compared to banks whose connections to other banks are not as good. The means of both the *degree* centrality measure and the *eigenvector* centrality measure are statistically significantly higher for winning banks. The *degree* measure shows that winning banks had, on average, participated in M&A deals as one of multiple advisors with 3.0 different banks in the prior year, while losing candidate banks had had such connections to only 1.1 banks. These findings provide support for the networking hypothesis and suggest that participating in M&A deals as one of multiple advisors could be advantageous for a bank not only because of the direct benefit from fees earned, but also because of the chance to build a network with other banks. The result is in line with the findings of Ljungqvist et al. (2005) and Asker and Ljungqvist (2006) who note the effect of networking in the context of choosing underwriters.

It can also be seen from Table 3 that both the mean of the industry expertise variable and also the mean of the client loyalty variable were significantly higher for winning banks. This univariate result suggests thus that both factors are taken into account by firms who choose their advisor for M&A transactions. The mean of the industry expertise variable for winning banks is 18.3%, meaning that the combined product market share of the winning candidate's clients in the acquirer's industry was 18.3%, on average. For losing banks, the respective figure is extremely low, only 0.4%, which suggests that most of the losing banks had no clients in the particular industry. The difference in the mean of the client loyalty variable between winning and losing candidates is not as dramatic, but still significant. Clients of winning banks appeared thus to be more loyal, i.e. not as prone to switching banks as clients of losing candidates.

Finally, Table 3 reports the mean of the deal size difference variable. The difference in the value between winning and losing banks is fairly small, albeit statistically significant. For winning candidates, the mean of the variable is 6.5 while for losing candidates the mean deal

size difference is 6.1. The result is thus contrary to the hypothesis that firms would prefer to choose such banks as their advisors whose "deal size profile" matches the size of the current deal hand. However, with the difference being quite small, it is difficult to draw any far-reaching conclusions based on only the univariate result.

Table 3. Descriptive Statistics
The unit of observation is a bank-deal pair. The estimation dataset consists of 1,582 transactions completed by firms ranked among the 20 largest in their three-digit SIC industries (based on Worldscope net sales) between 1996 and 2006, for each of which the 50 largest banks are deemed to compete to become advisor for the acquirer. This gives a sample of 79,100 bank-deal pairs. The columns headed "winning banks" refer to the bank-deal pairs involving banks that were awarded advisor mandates, while the columns headed "losing banks" refer to the bank-deal pairs involving banks that were eligible to compete for but were not chosen as advisor. Note that some deals have more than one advisor advising the acquirer, and so the number of winning banks exceeds the number of deals. The table shows the main explanatory variables used in the econometric models. A candidate bank's prior relationships with the acquirer and with the acquirer's product market rivals are based on their joint history of M&A transactions before the deal in question. The Megginson-Weiss measure is used as a proxy for the reputation of the advisor. The loyalty index measures how often a bank retains its M&A advisory clients in consecutive deals. A bank's industry expertise is proxied by the combined product market share of its clients in the same three-digit SIC industry as the issuer, at the time of the deal. The last column provides *t*-tests of differences in means/fractions comparing winning banks to losing banks. I use ***, **, and * to denote significance at the 0.1%, 1%, and 5% level (two-sided), respectively.

	Winning banks		Losing banks		
	Mean or fraction	St.dev	Mean or fraction	St.dev	*t*- test
Bank-deal pairs	N=1,851		N=77,249		
Bank-firm relationships					
bank's share of firm's M&A deals prior 4 quarters (%)	8.1	25.8	0.2	0.4	13.1 ***
Bank-rival relationships					
=1 if bank has ≥1 clients among the 3 largest firms in industry (%)	15.0	35.7	3.9	19.3	13.4 ***
=1 if bank has ≥1 clients among the 4-10 largest firms in industry (%)	13.2	33.8	3.7	18.7	12.1 ***
Bank characteristics					
bank's M&A advisory market share in prior calendar year (%)	6.1	6.0	1.7	3.8	31.1 ***
bank's Megginson-Weiss reputation measure	86.3	15.4	68.0	18.0	50.3 ***
bank's *degree* centrality	3.0	3.2	1.1	2.2	25.7 ***
bank's *eigenvector* centrality	18.0	15.6	6.1	11.0	32.7 ***
bank's industry expertise (%)	18.3	28.9	0.4	3.7	26.8 ***
bank's loyalty (%)	38.7	16.0	30.1	28.1	22.3 ***
ln abs(deal size – bank's mean deal size in prior calendar year)	6.5	1.6	6.1	1.6	10.4 ***

In order to check for potential problems caused by multicollinearity of the variables, I examine the Pearson correlation coefficients of the variables. Table 4 presents a correlation matrix of the variables used in the advisor choice model. Looking at the matrix, it can be seen that overall, all variables are significantly correlated with each other, but the level of correlation varies. First of all, Table 4 shows that both rival client dummy variables (1 and 2 in the table) are significantly and positively correlated against the M&A market share variable, the *degree* and *eigenvector* centrality measures, the Megginson-Weiss reputation measure, and the industry expertise variable. The correlation coefficient between the rival

client dummy variables and the other variables mentioned is around 0.30 for all pairs of variables.

Furthermore, it can be seen from Table 4 that the bank market share variable is fairly highly correlated with both the Megginson-Weiss reputation measure and the *eigenvector* centrality measure with the correlation coefficient being around 0.60 in both cases. In addition, the *eigenvector* centrality and Megginson-Weiss reputation variables are also significantly positively correlated with a correlation coefficient of 0.60. A very high level of correlation between the variables may induce instability in the regression results, and I therefore experiment with dropping one of the three variables in the probit specifications. Unreported individual regressions of the variables show that the statistical significance of the bank market share variable is lower when compared to the Megginson-Weiss variable and the *eigenvector* centrality variable. In addition, the inclusion of the *eigenvector* variable can be defended by the fact that is not based on calculating market shares from deal flow, as both the advisory market share variable and the Megginson-Weiss variable are. I thus omit the bank market share variable from all probit specifications except specification I. Correlations between other variables are not as severe and thus relations between other explanatory variables should not induce problems with multicollinearity in the multivariate models.

Table 4. Correlation Matrix
The table below shows pairwise correlation coefficients (Pearson) for the variables used in the advisor choice probit model. For each pair of variables, ***, **, and * indicate that the correlation coefficient is different from zero at the 0.1%, 1%, and 5% levels, respectively.

	Variable	1	2	3	4	5	6	7	8	9	10
1	Rival client dummy 1 (Top-3 rivals)	1.00									
2	Rival client dummy 2 (Top-4 to 10 rivals)	0.22 ***	1.00								
3	Bank's share of firm's M&A deals prior 4 quarters	0.04 ***	0.04 ***	1.00							
4	Bank's M&A advisory market share in prior calendar year	0.33 ***	0.31 ***	0.08 ***	1.00						
5	Bank's *degree* centrality	0.24 ***	0.17 ***	0.05 ***	0.46 ***	1.00					
6	Bank's *eigenvector centrality*	0.31 ***	0.29 ***	0.07 ***	0.64 ***	0.39 ***	1.00				
7	Bank's Megginson-Weiss reputation measure	0.28 ***	0.25 ***	0.07 ***	0.59 ***	0.49 ***	0.60 ***	1.00			
8	Bank's industry expertise	0.25 ***	0.14 ***	0.14 ***	0.20 ***	0.16 ***	0.18 ***	0.15 ***	1.00		
9	Bank's loyalty (%)	0.07 ***	0.07 ***	0.02 ***	0.16 ***	0.18 ***	0.19 ***	0.33 ***	0.04 ***	1.00	
10	*ln* abs(deal size – bank's avg. deal size in prior year)	0.09 ***	0.09 ***	0.02 ***	0.32 ***	0.16 ***	0.21 ***	0.29 ***	0.06 ***	0.10 ***	1.00

In the following, I turn to presenting the results of the advisor choice probit model. I begin by reporting the results from different specifications for the full sample, i.e. the sample of transactions with top-20 acquirers, after which I present the results from probit models with different subsamples based on the market position of the acquirer.

Full sample (top-20 acquirers)

Table 5 presents the estimated probit regression coefficients for the sample of transactions where the acquirer was among the 20 largest companies within its three-digit SIC industry. Specification II is different from specification I in that the advisory market share variable is dropped due to the fairly high correlation with the Megginson-Weiss reputation variable. Models III and IV are otherwise similar to model II, but model III includes an interaction term that crosses the log-transformed Herfindahl index of industry concentration in the acquirer's industry against the top-3 rival client dummy and model IV includes an interaction term crossing the multiple concurrent clients dummy with the top-3 rival client dummy.

Table 5. Advisor Choice Probit Regression (Top-20 Acquirers)
I estimate the probability that a given bank is chosen to advise the acquirer in a particular M&A transaction. I focus on deals involving a firm ranked among the 20 largest by Worldscope net sales in its three-digit SIC industry that year, and treat the 50 largest M&A advisors by market share that year as being in competition for each deal. The dependent variable equals 1 if the bank won the advisory mandate, and 0 otherwise. There are 3,674 M&A transactions during the sample period 1996–2006, of which 1,582 involve a top-20 firm. The model is estimated using probit. The intercept is not shown. The first column under each specification shows the probit coefficients while the second column shows the marginal effect of change in each variable on the probability of advisor choice. T-values are shown in italics. I use ***, **, and * to denote significance at the 0.1%, 1%, and 5% level (two-sided), respectively.

	Dependent variable: 1 if candidate bank is chosen as advisor, 0 otherwise							
	I		II		III		IV	
Independent variables	Coefficient	dF/dx	Coefficient	dF/dx	Coefficient	dF/dx	Coefficient	dF/dx
Bank-rival relationships								
=1 if bank has ≥1 clients among the 3 largest firms in industry	-0.123 **	-0.001	-0.111 **	-0.001	0.635 ***	0.010	-0.278	-0.001
	-2.97		*-2.70*		*6.87*		*-1.28*	
=1 if bank has ≥1 clients among the 4-10 largest firms in industry	0.088 *	0.001	0.099 *	0.001	0.102 *	0.002	0.093 *	0.000
	2.12		*2.39*		*2.44*		*2.23*	
Bank-firm relationships								
bank's share of firm's M&A deals prior 4 quarters	1.235 ***	0.014	1.235 ***	0.013	1.237 ***	0.020	1.215 ***	0.006
	14.51		*14.50*		*14.38*		*14.15*	
Bank characteristics								
bank's M&A advisory market share in prior calendar year	1.137 ***	0.017						
	3.75							
Megginson-Weiss reputation	0.017 ***	0.000	0.018 ***	0.000	0.018 ***	0.000	0.009 ***	0.000
	14.04		*16.55*		*16.10*		*7.08*	
bank's *degree* centrality	0.013 **	0.000	0.014 **	0.000	0.014 **	0.000	0.008	0.000
	2.76		*3.01*		*3.16*		*1.74*	
bank's *eigenvector centrality*	0.515 ***	0.000	0.609 ***	0.007	0.596 ***	0.009	0.380 ***	0.002
	4.89		*5.95*		*5.78*		*3.66*	
bank's industry expertise	0.042 ***	0.000	0.042 ***	0.000	0.046 ***	0.001	0.042 ***	0.000
	41.93		*42.14*		*42.86*		*41.51*	
bank's loyalty	0.106	0.001	0.093	0.001	0.089	0.001	0.093	0.000
	1.84		*1.61*		*1.53*		*1.45*	
ln abs(deal size – bank's avg. deal size in prior year)	-0.035 ***	0.000	-0.026 ***	0.000	-0.024 **	0.000	-0.012	0.000
	-4.29		*-3.39*		*-3.02*		*-1.49*	
Acquirer's industry concentration								
ln annual Herfindahl index of industry concentration					-0.176 ***	-0.003		
(interaction term with with top-3 rival client dummy)					*-11.18*			
Capacity constraints								
=1 if bank is advising other clients in this quarter							0.858 ***	0.004
(interaction term with with top-3 rival client dummy)							*3.93*	
Diagnostics								
Pseudo R^2	29.2 %		29.1 %		30.1 %		31.5 %	
Akaike Information Criterion (AIC)	12 233		12 245		12 087		11 851	
Wald test: all coefficients = 0 (χ^2)	5 043 ***		5 029 ***		5 191 ***		5 426 ***	
No. of bank-deal pairs	78 819		78 819		78 819		78 819	
thereof winning candidate banks	*1 812*		*1 812*		*1 812*		*1 812*	
thereof losing candidate banks	*77 007*		*77 007*		*77 007*		*77 007*	

Overall, the results in Table 5 suggest that the presence of rival clients has an effect on advisor choice that is consistent with the information spillover hypothesis. However, it also seems that only top-3 rival clients have the expected negative effect on the probability of choosing a particular bank as M&A advisor. It appears thus that having clients ranked 4 to 10 in their industry actually makes a bank more attractive to other firms, even when controlling for the industry expertise and reputation of the bank.

Table 5 shows that in models I and II, the coefficients of the top-3 rival client dummy are negative and statistically significant at the 1% level, which is in line with the information spillover hypothesis presented by Asker and Ljungqvist (2006). This suggests that top-20 firms are less likely to choose an investment bank as their advisor if it has advised clients that are among the three largest firms in that particular three-digit SIC industry. In model IV, the coefficient of the top-3 rival client dummy is also negative but statistically insignificant, which can probably be explained by the inclusion of the interaction variable in the model.

At first glance, the positive and statistically highly significant coefficient of the top-3 rival client dummy in model III would appear to be inconsistent with the information spillovers hypothesis. However, the sign change can be explained by the inclusion of the interaction term that interacts the Herfindahl index with the top-3 rival client dummy. As can be seen from Table 5, the coefficient of the interaction term is negative while the coefficient of the rival client dummy is positive. In econometric terms, the estimated main effect of the top-3 rival client dummy on the probability of advisor choice is thus positive while the interaction effect of the top-3 rival client dummy and the Herfindahl index is negative. Taken together, this tells us that at low levels of industry concentration, having a top-3 rival client has a positive effect on the said probability, but that at higher levels the effect is negative.[8] The sign change in the coefficient of the rival client dummy is therefore not inconsistent with the information spillover hypothesis, but rather it implies that the effect of information spillovers is stronger in concentrated industries. This is in line with my hypotheses and the findings of Asker and Ljungqvist (2006) in connection with underwriting.

[8] Kennedy (2003, 400) mentions the inclusion of an interaction term as one of several factors that may lead to an unexpected sign change in a regression model. I have used the guidelines given by Kennedy (2003) for such situations in interpreting my results.

Comparing with the univariate results in Table 3, it can be seen that the negative coefficient of the top-3 rival client dummy is in contrast with the univariate finding. As suggested earlier, the sign switch is likely due to the fact that industry expertise is not taken into account in the univariate setting. By estimating an unreported regression where I drop the industry expertise variable from specification II, I am able to confirm that industry expertise is indeed responsible for the sign switch in the multivariate model.

Table 5 also shows that the coefficient for the top-4 to 10 rival client dummy is positive and statistically significant at the 5% level across all specifications. This result is somewhat puzzling since it suggests that banks that have such rival clients are more desirable for firms who are choosing their advisor. As such, it contrasts with the information spillover hypothesis. Asker and Ljungqvist (2006), who report similar results, explain this finding by suggesting that the coefficient is tainted by the effect of industry expertise even when it is controlled for directly by including the industry expertise variable in the model. Accordingly, since industry expertise is expected to have a positive effect on the probability of advisor choice, it is likely that the coefficient of the top-4 to 10 rival client dummy is positively biased. It is also conceivable that firms might not be as concerned with sharing an investment bank with a firm outside the group of three market leaders, since smaller firms are not able to use any spilled information as effectively as larger firms to exert pressure on other firms in the same industry.

Moving on to the control variables, Table 5 shows that the coefficient of the variable proxying for the closeness of bank-firm relationships, i.e. a bank's share of the acquirer's M&A deals in the prior 4 quarters, is positive and statistically significant at the 0.1% level across all specifications. This is consistent with previous underwriting literature (e.g. Ljungvist et al. 2005, 2006) as well as with Saunders and Srinivasan (2001) who note the effect of long-term bank relationships on M&A advisory fees. The results support the hypothesis that an acquirer is more likely to choose a particular bank as its M&A advisor if the firm has awarded that bank a large share of the firm's M&A advisory mandates in the recent past. It seems thus that firms are more comfortable with choosing a advisor that they are familiar with, which is a rather intuitive conclusion.

Table 5 shows also that both reputation variables take their expected signs and they are statistically significant at the 0.1% level. As can be seen from model I, banks with a higher

M&A advisory market share are more likely to be chosen as advisors. Furthermore, specifications I–IV show that a bank's Megginson-Weiss reputation measure has the corresponding positive effect on a bank's probability of being chosen as advisor. As noted earlier, the advisory market share variable is dropped in specifications II–IV because of its relatively high correlation with the Megginson-Weiss measure. The finding is in line with previous literature on investment bank reputation (e.g., Kale et al. 1998, Rau 2000, Saunders and Srinivasan 2001, Rau and Rodgers 2002, Kale et al. 2003, and Asker and Ljungvist 2006).

The results in Table 5 also provide support for the hypothesis that better networked banks are more likely to be chosen as advisors by acquirers. The coefficient of the *degree* centrality measure is positive and statistically significant at the 1% level in all model specifications except for model IV, where the coefficient appears to lose its significance. This is probably due to multicollinearity in the model resulting from the introduction of the interaction term, which inflates the standard errors of the regression coefficients. The coefficient is still significant at the 10% level, which implies that the positive coefficient is not due to pure chance. The coefficient of the *eigenvector* centrality measure is also positive and statistically significant at the 0.1% level across all specifications. As hypothesized, this implies that it is not only *how many* banks you have in your network that matters, but also *which banks*. The result is consistent with Asker and Ljungqvist (2006) and Ljungqvist et al. (2006) who report similar results in connection with underwriting. The importance of networks has also been brought up in the area of venture capital syndication (See, e.g., Hochberg et al. 2005). To my knowledge, this thesis is among the first to have confirmed this also in the context of M&A advisory relationships, which makes this result noteworthy.

Furthermore, the coefficient for industry expertise is positive and statistically significant at the 0.1% level in all four specifications. Banks with a high level of industry expertise seem to have a better chance of being chosen as advisors by top-20 acquirers. Of other control variables, the coefficient for the deal size difference variable also takes its expected negative sign and it is statistically significant in all specifications except for specification IV. Finally, the coefficient for the client loyalty variable fails to be statistically significant at the 5% level. The lack of significance of the loyalty variable is in contrast with the results of Asker and Ljungqvist (2006) who found loyalty of a bank's clients to be highly significant in determining the probability of underwriter choice. One possible explanation for this could be

that in buy-side M&A advisory as opposed to underwriting, relationships between investment banks and client firms are perhaps not as persistent, but rather firms tend to "shop around" more when choosing their advisor.

Table 6 presents two further probit regression models that are otherwise identical to model specification II in Table 5, except that the effect of rival relationships is split into active and inactive relationships. The two columns of Table 6 reports results for two definitions of active and inactive. In the first column (labeled "Switches T=5"), a candidate bank's client that is a rival client of an acquirer is considered to be inactive if the client has not awarded any M&A business to the bank for five years. According to the definition used in the second column of Table 6 (labeled "Switches T=3"), a candidate bank's client is considered to be inactive after three years. I also assume that a bank's information about a client "decays" after a certain time and thus code a client as being inactive for only one year after the switch from active to inactive, after which the firm is no longer considered a client of the bank.

Following the approach used by Asker and Ljungqvist (2006), I also calculate the difference between the active and inactive client variables. This is based on the reasoning that choosing a bank as advisor that has an active rival client not only subjects the acquirer to disutility from possible information spillovers, but also provides a benefit to the acquirer since the acquirer gains industry expertise from advising other firms in the same industry. On the other hand, if the candidate bank has an inactive rival client, the acquirer receives the benefit from industry expertise but is not subjected to the risk of information spillovers. Accordingly, one should be able to measure the pure effect of information spillovers by calculating the difference between the coefficients of the inactive and active rival client dummy variables.

Overall, Table 6 seems to confirm the findings presented in Table 5. To summarize, it appears that when a bank has clients that are among the top-3 firms in an industry, the bank is less likely to be chosen as advisor by an acquirer in that industry. It seems also that having clients that are ranked between 4 and 10 in the industry does not have a similar effect. Table 6 shows that the coefficient of the active client variable is positive and statistically significant at the 0.1% level irrespective of what definition of active and inactive is used. Furthermore, the coefficient of the inactive client variable takes a positive sign implying that there is a benefit from choosing a bank with inactive rival clients that are among the top-3 in their industry. Consequently, the difference between the coefficients of the inactive and active client

variables is statistically significantly negative at the 0.1% level, which provides support for the information spillovers hypothesis. When looking at the marginal effects on the probability of advisor choice as reported in the columns marked "dF/dx" in Table 6, it also appears that the negative effect of having active top-3 rival clients is stronger when using three years as the cut-off period for active and inactive clients as opposed to a five-year period. This suggests, quite intuitively, that as time passes from the transaction where an investment bank advised a rival company, acquirers will probably feel more comfortable with using the same investment bank as their own advisor.

It can also be seen from Table 6 that having top-4 to 10 rival clients appears not have a statistically significant effect on the probability of advisor choice, except in the case of active clients with T=5 where the coefficient of the variable is positive. As noted above, it seems that in these cases, the effect of industry expertise outweighs the disutility brought on by potential information spillovers. Furthermore, as should be the case, the coefficients of the control variables in Table 6 are essentially of the same magnitude and statistical significance as in Table 5. I will therefore not comment on them in detail.

Table 6. Advisor Choice Following Rival Client Switches

The models shown here are identical to specification II shown in Table 5, except that the effect of rival relationships is split into those that are active at the time of the current M&A transaction and those that are inactive. Results are reported for two definitions of active and inactive. The first (labeled "Switches T=5") considers a candidate bank's rival client to be inactive if the firm has awarded no M&A advisory business to the bank for five years while the second definition ("Switches T=3") considers a client to be inactive after three years of no M&A advisory mandates given to the bank. I assume that a bank's information about the rival client decays following a switch, and accordingly code the bank as having an inactive rival client for only one year following the switch (years 6 and 4, respectively). After that, the bank is coded as having no rival clients (active or inactive). Following Asker and Ljungqvist (2006) I conjecture that hiring a bank that has an active rival client subjects the firm to the risk of information spillovers. However, the firm may benefit from the relationship with such a bank because of the bank's industry expertise and the possibility that the bank may disclose information about the firm's rivals. The difference between the coefficients estimated for active and inactive rival clients should thus isolate the effect of information spillovers to rival firms on the choice of M&A advisor. I use probit in estimating the models. I report only the coefficients estimated for active and inactive rival relationships, and the difference between the two (to measure the net effect of information spillovers). T-values are shown in italics. Standard errors for the difference between the coefficients are calculated using the delta method. I also report marginal effects for each coefficient and for the difference (dF/dx). I use ***, **, and * to denote significance at the 0.1%, 1%, and 5% level (two-sided), respectively.

Dependent variable: 1 if candidate bank is chosen as advisor, 0 otherwise				
	Switches (T=5)		Switches (T=3)	
Independent variables	Coefficient	dF/dx	Coefficient	dF/dx
Top-3 rival clients				
= 1 if bank has active top 3 rival	-0.138 ***	-0.002	-0.344 ***	-0.004
	-3.25		*-6.35*	
= 1 if bank has inactive top 3 rival	0.209 **	0.002	0.223 *	0.002
	2.65		*3.01*	
Difference	-0.347 ***	-0.004	-0.567 ***	-0.006
	-3.58		*-5.81*	
Top-4 to 10 rival clients				
= 1 if bank has active top 4-10 rival	0.082 *	0.001	0.086	0.001
	1.96		*1.82*	
= 1 if bank has inactive top 4-10 rival	0.126	0.001	0.133	0.001
	1.31		*1.70*	
Difference	-0.044	0.000	-0.047	-0.001
	-0.39		*-0.47*	
Bank-firm relationships				
bank's share of firm's M&A deals prior 4 quarters	1.221 ***	0.014	1.213 ***	0.013
	14.33		*13.47*	

Table 6 continued

Bank characteristics				
Megginson-Weiss reputation	0.018 ***	0.000	0.019 ***	0.000
	16.54		*16.23*	
bank's *degree* centrality	0.013 **	0.000	0.014 **	0.000
	2.93		*2.99*	
bank's *eigenvector centrality*	0.608 ***	0.000	0.624 ***	0.007
	5.95		*6.05*	
bank's industry expertise	0.042 ***	0.000	0.043 ***	0.000
	42.12		*35.27*	
bank's loyalty	0.090	0.001	0.090	0.001
	1.58		*1.59*	
ln abs(deal size – bank's avg. deal size in prior year)	-0.027 ***	0.000	-0.026 ***	0.000
	-3.44		*-3.39*	
Diagnostics				
Pseudo R^2	28.8 %		29.1 %	
Akaike Information Criterion (AIC)	12 303		12 265	
Wald test: all coefficients = 0 (χ^2)	5 046 ***		5 084 ***	
No. of bank-deal pairs	78 819		78 819	
thereof winning candidate banks	*1 812*		*1 812*	
thereof losing candidate banks	*77 007*		*77 007*	

Subsamples

I estimate probit regressions for subsamples of the advisor choice sample based on the sales ranking of the acquirer in its three-digit SIC industry. Whereas the main sample comprised acquisitions performed by acquirers that were ranked among the top-20 companies in their industries, the four subsamples examined in the following consist of acquisitions made by (1) top-3 companies, (2) top-10 companies, (3) companies ranked top-4 to 10, or (4) companies ranked top-11 to 20 in their industry. Compared with Asker and Ljungqvist (2006) who only examine top-10 companies, my approach thus differs in that I attempt to find differences between companies that are among the leading firm in their industry and companies whose market position is not as strong. It should be noted, however, that the approach taken here does not actually test for differences between subsamples, but rather it merely shows what the effect of each factor is in each subsample. Moreover, it should be noted that the top-10 subsample naturally overlaps with subsamples (1) and (3).

Table 7 presents the estimated probit regression coefficients for the four subsamples. The model specification used with all four subsamples is the same as specification II in Table 5 above. The first column of Table 7 shows the regression coefficient estimates for the subsample of acquisitions performed by top-3 firms. The negative and highly significant coefficient of the top-3 rival client dummy for this subsample supports the hypothesis that the

presence of top-3 rival clients deters other leading companies from choosing a certain investment bank as their M&A advisor. It can also be seen from Table 7 that this coefficient is not statistically significant for other subsamples. This indicates that the potential disutility caused by sharing M&A advisors with rival firms is not as important for smaller firms. This conclusion can also be supported by comparing the marginal effects on the probability of advisor choice that the presence of top-3 rival clients has. For the top-20 sample in Table 5 the presence of top-3 rival clients decreases the probability of choosing a particular advisor by 0.1 percentage points while for the top-3 sample the corresponding decrease in probability is 0.2 percentage points. This finding is noteworthy when compared to Asker and Ljungqvist (2006) who restrict their examination only to top-10 companies. My results imply that information spillovers might be a concern for only the very largest companies in each industry.

Looking at the coefficients of the top-4 to 10 rival client dummy in Table 7, it appears that this factor is not statistically significant for any other subsamples except for the top-10 subsample. However, as in Table 5, the sign of the coefficient is positive across all subsamples. As discussed above, the positive sign of the coefficient of the top-4 to 10 rival client dummy could be interpreted as being positively biased by the effect of industry expertise that outweighs the potential negative effect of information spillovers.

Furthermore, Table 7 shows that the coefficients of the control variables mostly take their expected signs and their statistical significance is similar to what could be seen with the full sample in Table 5. However, there are some minor differences and therefore a closer examination is warranted. It can be seen from Table 7 that prior bank-firm relationships, bank reputation, and industry expertise all have positive coefficients and are statistically significant at the 0.1% level across all four subsamples, which is consistent with the results obtained with the full sample. The two networking measures, *degree* and *eigenvector* centrality also seem to have a positive effect on the probability of advisor choice in all subsamples, although *degree* centrality does not enter the model statistically significantly with the top-4 to 10 subsample. This could be due to *eigenvector* centrality already capturing the effect of *degree* centrality.

The coefficients of the last two control variables, loyalty and absolute size difference between the current deal and the bank's average deal size, exhibit some interesting differences between subsamples. First of all, Table 7 shows that loyalty only enters the model statistically significantly with the top-11 to 20 subsample, i.e. with companies that are not among the top-10 companies in their industry. For this subsample, the coefficient of the loyalty variable is

positive and statistically significant at the 5% level. This result could be interpreted as implying that smaller companies who probably do not have as much negotiating power in respect with investment banks are seeking long-term relationships with investment banks. Therefore, they might prefer choosing a bank whose clients have exhibited loyalty towards the bank, i.e. have not switched banks as often as clients of other banks. Furthermore, Table 7 also shows that the effect of absolute deal size difference is more significant with the top-11 to 20 subsample. The negative coefficient of the variable indicates that acquirers in that subsample are less likely to choose a particular bank as their advisor if the bank on average performs much larger or smaller deals than the acquirer's current deal. For top-3 and top-10 companies, this factor does not seem to be a factor affecting M&A advisor choice. This result can be interpreted as suggesting that larger companies can, in effect, choose any bank they want as their advisor, while smaller companies will have to choose a bank that is willing to perform advisory in relation to a deal that is most likely smaller than the deals performed by larger companies. This could thus be seen as providing support for the "deal size profile" hypothesis according to which investment banks may have certain threshold levels for deal size, above which or below which they will be reluctant to engage in advisory for an acquirer.

Table 7. Advisor Choice Probit Regressions for Acquirer Subsamples
I estimate the probability that a given bank is chosen to advise the acquirer in a particular M&A transaction using four subsamples of the sample of acquirers. The model specification used for each subsample is the same as specification II in Table 5 above. The subsamples are based on the Worldscope net sales ranking of the acquirer in its three-digit SIC industry in the year of the transaction. I treat the 50 largest M&A advisors by market share that year as being in competition for each deal. The dependent variable equals 1 if the bank won the advisory mandate, and 0 otherwise. The model is estimated using probit. The intercept is not shown. The first column under each subsample shows the probit coefficients while the second column shows the marginal effect of change in each variable on the probability of advisor choice. T-values are shown in italics. I use ***, **, and * to denote significance at the 0.1%, 1%, and 5% level (two-sided), respectively.

	Dependent variable: 1 if candidate bank is chosen as advisor, 0 otherwise							
	Top-3		Top-10		Top-4 to 10		Top-11 to 20	
Independent variables	Coefficient	dF/dx	Coefficient	dF/dx	Coefficient	dF/dx	Coefficient	dF/dx
Bank-rival relationships								
=1 if bank has ≥1 clients among the 3 largest firms in industry	-0.205 **	-0.002	-0.092	-0.001	-0.007	0.000	-0.059	-0.001
	-2.90		*-1.96*		*-0.11*		*-0.66*	
=1 if bank has ≥1 clients among the 4-10 largest firms in industry	0.043	0.000	0.095 *	0.001	0.106	0.001	0.109	0.002
	0.61		*1.97*		*1.58*		*1.34*	
Bank-firm relationships								
bank's share of firm's M&A deals prior 4 quarters	0.633 ***	0.005	1.079 ***	0.011	1.643 ***	0.021	2.195 ***	0.031
	5.03		*11.71*		*11.67*		*9.19*	
Bank characteristics								
Megginson-Weiss reputation	0.021 ***	0.000	0.020 ***	0.000	0.018 ***	0.000	0.015 ***	0.000
	11.99		*15.41*		*9.76*		*6.39*	
bank's *degree* centrality	0.013 *	0.000	0.011 *	0.000	0.008	0.000	0.027 **	0.000
	1.97		*2.10*		*1.02*		*2.64*	
bank's *eigenvector centrality*	0.433 **	0.004	0.581 ***	0.006	0.766 ***	0.010	0.733 **	0.010
	2.77		*5.06*		*4.45*		*3.23*	
bank's industry expertise	0.048 ***	0.000	0.044 ***	0.000	0.037 ***	0.000	0.020 ***	0.000
	39.24		*41.97*		*15.01*		*4.50*	
bank's loyalty	-0.008	0.000	0.039	0.000	0.079	0.001	0.256 *	0.004
	-0.08		*0.59*		*0.84*		*2.17*	
ln abs(deal size – bank's avg. deal size in prior year)	0.000	0.000	-0.015	0.000	-0.029 *	0.000	-0.058 ***	-0.001
	0.04		*-1.72*		*-2.19*		*-3.33*	
Diagnostics								
Pseudo R^2	42.6 %		32.9 %		19.2 %		13.2 %	
Akaike Information Criterion (AIC)	5 113		9 668		4 475		2 577	
Wald test: all coefficients = 0 (χ^2)	3 773 ***		4 730 ***		1 058 ***		390 ***	
No. of bank-deal pairs	40 026		65 367		25 341		13 699	
thereof winning candidate banks	*934*		*1 512*		*578*		*308*	
thereof losing candidate banks	*39 092*		*63 855*		*24 763*		*13 391*	

5.3 Advisor switching

I estimate the probability that an acquirer switches advisors in consecutive transactions using a probit regression model. As explained in chapter 4.3.2, I attempt to separate the direct effect of information spillovers by using bank mergers as exogenous shocks. I thus test whether the merger of a firm's current advisor with another bank who has rival clients in the firm's industry affects the probability that the firm switches advisors. Table 8 presents the estimated probit regression coefficients.

In the first model specification in Table 8 (labeled "I"), the reference category comprises the group of acquirers whose current advisor had not been involved in a merger with another bank since the acquirer's current transaction. In the second model specification (labeled "II"),

the reference category consists of all the acquirers whose current advisor bank had undergone a merger with another bank since the acquirer's last transaction. It should be noted that duet to the fact that there were only 47 transactions that filled the requirements for the second part of the test, the probit regression failed to produce any statistically significant results from model specification II. As Asker and Ljungqvist (2006) note, it appears that banks have largely avoided merging with other banks that have rival clients.

Looking at the estimated regression coefficients in model specification I in Table 8, it can be seen that the two bank merger variables do no enter the model statistically significantly. No conclusions can thus be made based on these results as to the existence of the potential effect of information spillovers. In this respect, my results differ from Asker and Ljungqvist (2006) who found that the probability of switching underwriters increased between consecutive underwriting transactions if the underwriter had merged with another bank after the first transaction that had top-10 clients in the same industry with the issuing firm. However, it should be noted that the statistical significance of the results Asker and Ljunqvist (2006) is somewhat mixed.

Table 8 also shows that the closeness of bank-firm relationships seems to have an effect on the probability of advisor switching. The coefficient of the relationship variable is negative and statistically significant at the 0.1% level indicating that the closer the relationship between an acquirer and its current investment bank, the less likely it is to switch advisors in its next M&A transaction. This is in line with the results of the advisor choice model.

Table 8. Advisor Switches Following Bank Mergers
I estimate the probability that an acquirer switches advisors in consecutive M&A deals. A switch is defined as an acquirer hiring as advisor any bank other than the advisor of its most recent M&A transaction.. In the case of multiple advisors, any failure to retain every advisor from the previous deal is coded as a switch. I focus on deals involving a firm ranked among the 20 largest by Worldscope net sales in its three-digit SIC industry that year. All bank variables refer to characteristics of the advisor in the previous deal measured as of the time of the current deal. The model is estimated using probit. The intercept is not shown. T-values are shown in italics. I use ***, **, and * to denote significance at the 0.1%, 1%, and 5% level (two-sided), respectively.

	M&A Transactions			
	I		II	
	Coefficient	dF/dx	Coefficient	dF/dx
Bank-rival relationships				
=1 if bank involved in merger since previous deal but merger partner has no rival relationships	-0.016	-0.002		
	-0.05			
=1 if since previous deal, bank has merged with another bank that has one or more clients among 10 largest firms in acquirer's industry	-0.931	-0.125	-0.741	-0.022
	-1.03		*-0.69*	
Bank-firm relationships				
bank's share of firm's M&A deals prior 4 quarters	-0.710 ***	-0.095	*n.m.*	*n.m.*
	-4.39		*n.m.*	
Bank characteristics				
Megginson-Weiss reputation	-0.012 *	-0.002	-0.065	0.000
	-2.33		*-1.44*	
bank's *degree* centrality	0.007	0.001	0.026	0.003
	0.25		*0.08*	
bank's *eigenvector* centrality	-0.003	0.000	-8.070	0.000
	-0.01		*-1.42*	
bank's industry expertise	-0.003 *	0.000	-0.016	-0.000
	-2.13		*-1.61*	
bank's loyalty	-1.513 ***	-0.203	2.487	0.075
	-3.80		*0.00*	
ln abs(deal size – bank's mean deal size in prior calendar year)	0.091	0.012	-0.371	-0.011
	1.65		*-1.04*	
Time since previous deal				
ln (1+ years since previous deal)	0.311 ***	0.042	-0.110	-0.003
	3.36		*-0.16*	
Diagnostics				
Pseudo R^2	5.3 %		36.2 %	
Akaike Information Criterion (AIC)	876		31.5	
Wald test: all coefficients = 0 (χ^2)	76 ***		13	
No. of M&A transactions	807		47	

Furthermore, Table 8 shows that the likelihood of advisor switching seems to be decreasing with bank reputation. The Megginson-Weiss reputation variable has a negative coefficient that is statistically significant at the 5% level. Somewhat surprisingly, the coefficients two variables that measure the quality and extensiveness of a bank's networks with other banks, i.e. *degree* and *eigenvector* centrality, fail to reach statistical significance in the model. This might be explained by the fairly high correlation between the two variables and the Megginson-Weiss reputation measure, which implies that the reputation measure may actually capture some or most of the effect of the networking measures. There is thus no

support for the hypothesis that the better a bank is networked with other banks, the less likely the bank's clients are to switch advisors in consecutive transactions.

Looking at the other control variables, it can be seen that industry expertise, loyalty, and time since previous deal all take their expected signs with the first being statistically significant at the 5% level and the latter two at the 0.1% level. In addition, although the coefficient of the absolute deal size difference variables fails to be statistically significant at the 5% cutoff level, it reaches a significance level of 10%, which means that the positive coefficient cannot probably be regarded as being due to pure chance.

As noted earlier, the estimated coefficients in model specification fail II to reach any significance because of the insufficient amount of data in the treatment group. The results in the second specification in Table 8 are thus inconclusive and the null hypothesis that information spillovers have no effect on the probability of advisor switching cannot be rejected based on these tests. It seems that the sample time period would have to be extended considerably in order to have sufficiently data points for the testing approach taken here.

6. Summary and conclusions

As stated earlier, the objective of this thesis is to examine whether the risk of information spillovers has an effect on how acquirers choose their advisor in M&A transactions. I thus study, whether the risk that strategically sensitive information is transmitted to an acquirer's competitors affects how the acquirer chooses its advisor. The potential for information spillovers arises when an investment bank that advises an acquirer has recently advised other firms that are product-market rivals of the acquirer. Furthermore, there is a risk of information spillovers also whenever the current advisor of an acquirer merges with another bank that has recently advised competitors of the acquirer.

The research problem of this thesis is motivated by the findings of Asker and Ljungqvist (2006) who find that firms who issue debt or equity securities seem to be reluctant to share underwriters with their product-market rivals. I apply the methodology used by Asker and Ljungqvist (2006) and examine whether the same observation can be made with respect to acquiring firms choosing their M&A advisors.

Empirically, my approach to the research problem is two-fold: First, I estimate a probit regression model of the probability that a certain bank is chosen as M&A advisor by an acquiring firm. In this model, I treat the top-50 M&A advisors as candidate banks from which the acquirer chooses its advisor for the current transaction. I use dummy variables to examine the effect on advisor choice probability of a bank having clients that are product-market rivals of acquirer. Second, I construct another probit regression model to estimate the probability that an acquirer switches advisors in consecutive M&A transactions. In this model, I use a dummy variable to examine the effect that the merger of an acquirer's current advisor with another bank has on switching probability.

The data set used for the probit regression models in this study consists of 1582 M&A transactions performed by top-20 companies in their three-digit SIC industries between 1.1.1996 and 30.9.2006. A subset of this data sample comprising 807 transactions is used for the advisor switching model. The M&A transaction data is collected from the Thomson Financial SDC database and it is complemented with company-specific data from the Thomson Financial Worldscope database.

The results from the advisor choice probit regression model provide support for the information spillovers hypothesis, but are somewhat mixed. With the full sample of acquisitions, the presence of product-market rival clients is negatively related to the probability that a certain bank is chosen as advisor, but the negative effect is limited to cases where the rival clients are among the top-3 firms in their industry. The results from the full-sample test also indicate that the effect of information spillovers is stronger in highly concentrated industries. However, it seems that a bank is more likely to be chosen as advisor by an acquirer if it has recently advised clients that are among the top-4 to 10 companies in the acquirer's industry. It may be that the regression coefficient for top-4 to 10 rival clients is positively biased because of the positive effect of industry expertise that outweighs the effect of information spillovers. The results are in line with the findings of Asker and Ljungqvist (2006) who examined underwriter choice by top-10 companies.

The examination of different subsamples based on the market position of the acquirer reveals that the top-3 rival client variable loses its statistical significance for all other subsamples except for acquisitions performed by top-3 companies. This indicates that the disutility caused by potential information spillovers is a determining factor in M&A advisor choice only for the

largest companies in each industry. This finding provides new information about the extent of the group of companies that might be affected by the information spillover effect since Asker and Ljungqvist (2006) restrict their attention only to the group of top-10 companies as a whole.

Besides the effect of information spillovers, I find that the probability of advisor choice is positively affected by the strength of existing bank-firm relationships, bank reputation, industry expertise, and the absolute difference between the size of the current deal and the bank's average deal size. These results are not particularly interesting, but rather they merely confirm the findings of earlier M&A and underwriting literature. The loyalty of a bank's clients enters the model statistically significantly only for the subsample of acquirers ranked between 11 to 20 in their industry, which is in contrast with the results of Asker and Ljungqvist (2006). This could imply that in M&A advisory, especially large acquirers tend to "shop around" more when choosing their advisor.

The finding that the centrality of a bank in the network of investment banks has a positive effect on a bank's chances of being chosen as M&A advisor is more interesting since it has, to my knowledge, not been recognized before in M&A literature. Applying methods commonly used in social networks analysis could provide interesting opportunities for future research also in other areas of the financial markets.

The results from the advisor switching model fail to provide any support for the information spillovers hypothesis, which is at least partly due to insufficient data on mergers between banks that have clients in the same industry. The strength of the relationship between the acquirer and the firm, bank reputation, industry expertise of the bank, and the loyalty of a bank's clients all decrease the probability of advisor switching in consecutive transactions, as expected. I also find that the amount of time that has passed since the previous deal makes it more likely for an acquirer to switch advisors.

My findings suggest, on the one hand, that the risk of information spillovers sets a limit on the market power of individual investment banks who are competing for buy-side M&A advisory mandates, since having clients in a certain industry seems to discourage other firms in that industry from choosing that bank as their advisor. On the other hand, however, my results also indicate that information spillovers are a concern only for the top-3 companies in each

industry. Investment banks who are targeting the largest companies in each industry are thus likely to be unable to reach a dominating position among these firms.

The result concerning the importance of interbank networks in winning advisory mandates has an interesting implication. Although advising an acquirer in a transaction as the sole advisor might seem preferable to acting as one of many advisors, my results indicate that co-advising with other banks has a beneficial effect on future deal flow since it provides investment banks with an opportunity to create contacts to other banks. Furthermore, not only the number of contacts a bank has, but also the quality of contacts matters. The result is in line with Ljungqvist et al. (2006) who note the effect of bank networks when competing for access to underwriting syndicates.

This thesis raises some issues that might provide interesting avenues for future research. First of all, one question that needs to be answered is, whether the effect of potential information spillovers is different in sell-side M&A advisory when compared to advisory performed for acquirers. It is plausible to think that when advising target companies, even more in-depth information gathering and analysis concerning the client firm is required than when advising acquirers, and thus information spillovers could have an even more significant effect. Second, some methodological improvements could be implemented in future studies. For example, defining industries based on SIC codes is most likely suboptimal, since the SIC classification method is already somewhat outdated. NAICS codes or some form of input-output analysis could be used to create more accurate industry groups. Another issue that needs to be developed in future research is how to reliably separate the effects of potential information spillover, on the one hand, and industry expertise of the bank, on the other hand.

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